

BLASTINGLY FAST: TOP MAC ACCELERATORS TESTED

JUNE 1992

MacUser

BUYER'S GUIDE

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MAC OFFICE!**

The Best Business Software

SPREADSHEETS

**Time to switch?
Excel vs. Resolve
and Lotus 1-2-3**

WORD PROCESSORS

**How to choose
the right write**

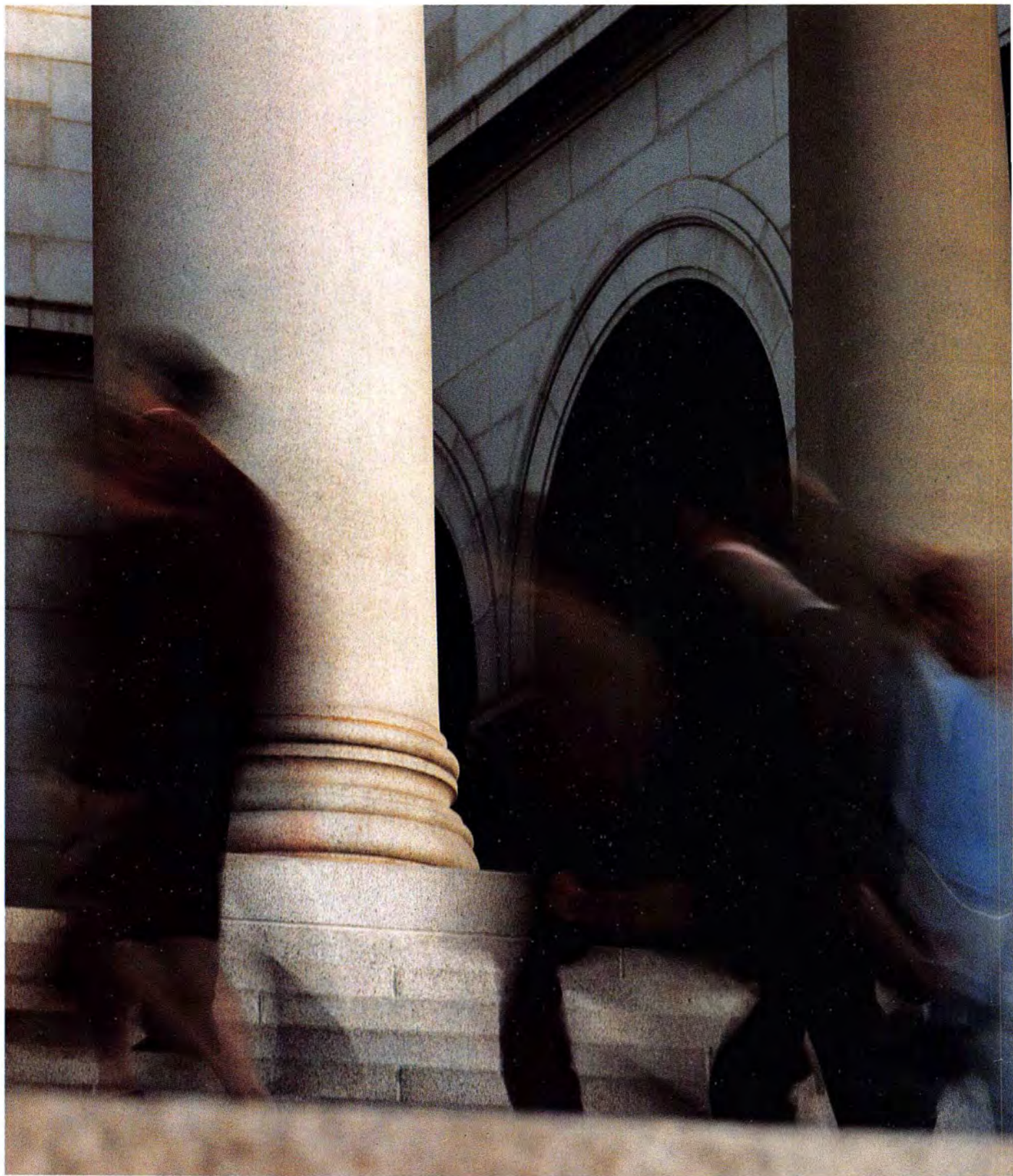
INTEGRATED SOFTWARE

Which "Works" works best?

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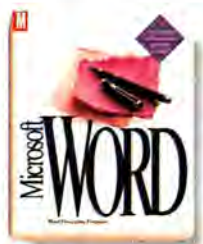
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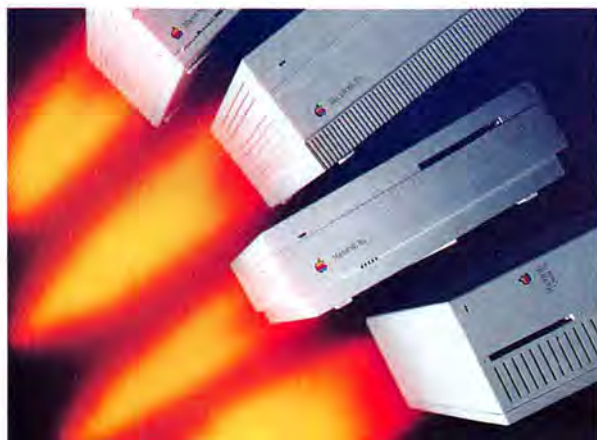
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MacUser

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On the cover: The Mac IIsi and the new SuperMac SuperMatch 17 Multimode Color Display make an elegant pair on any business desktop. **Cover photo by Steven Underwood**



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is the easiest
way to shop for Mac
hardware and software, if
you shop around for the right
mail-order company."* 228



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Jonathan A. Lane

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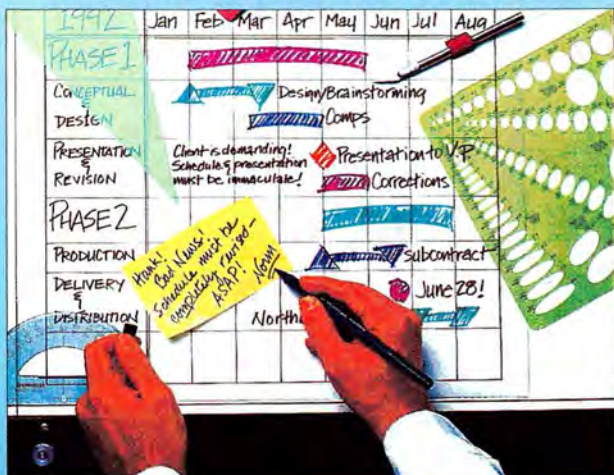
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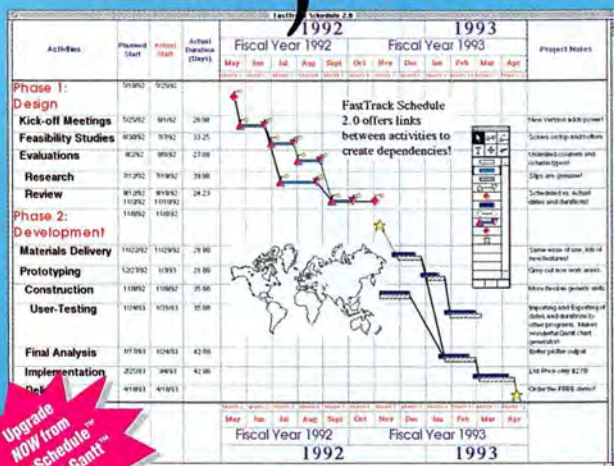
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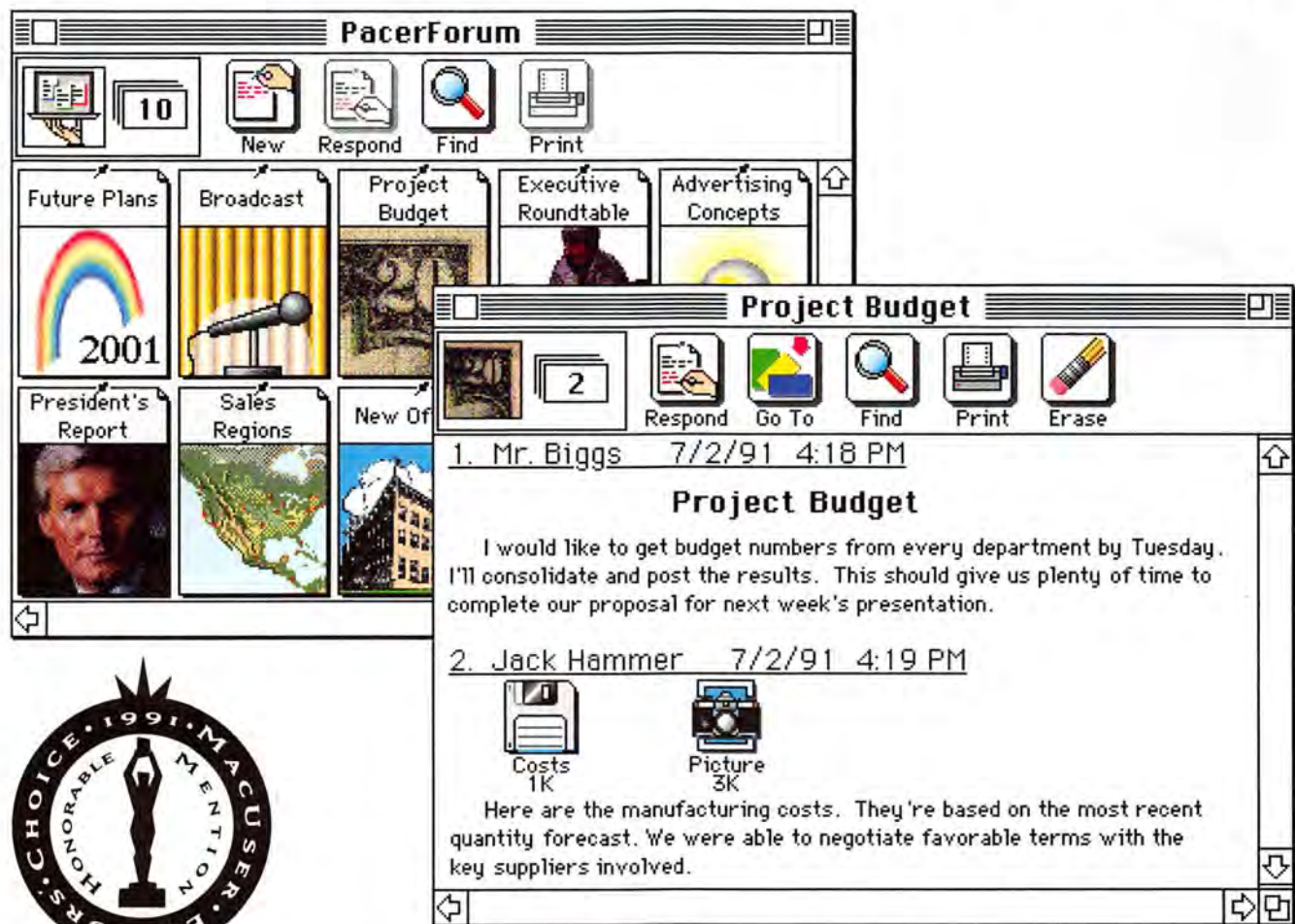
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MacUser

Business Blues Busters


Today's business decision makers face tough challenges, and using the best software for the task at hand is one of the best strategies for meeting these challenges. To aid your decision making, we've put together this month's special focus on business software, with head-to-head comparisons of the best word processors, spreadsheet programs, integrated packages, and relational-database-management programs as well as a roundup of 37 uniquely business-oriented products.

Business is communication, and the current generation of word processors offers features and performance for cranking up the quality and timeliness of corporate communications. Some word processors now do double-duty as page-layout software, for instance. For processing efficiency, some include glossaries for instant access to your logo, signature, or boilerplate text (see "Key Words," Buyer's Guide page 18).

The invention of the spreadsheet program has turned decision makers into strategists. The latest spreadsheet programs (see "New Dimensions in Spreadsheets," Buyer's Guide page 32) play the what-if game better than ever, with consolidation tools, customizability, and clever auto-sum and auto-fill features.

One category of software, integrated packages, can actually cut the cost of your software investment. Several packages now combine word-processing, spreadsheet, database, and telecommunications functions into one attractively priced product. These packages are easy to use and learn and can transfer data among modules (see "Swiss-Army Software," Buyer's Guide page 44).

You get what you pay for, and low price and ease of use tend to come at the expense of power. You won't, for example, see a fully relational database module in an integrated package. Relational-database managers are tricky to master, but they pay off in performance. They are also tricky to evaluate, so for our head-to-head comparison ("Database Strategies: Relational Databases," Buyer's Guide page 60), we called in four relational-database experts — David Beaver, of The Automation Group; Lenny Eiger, of Data Bright Management Systems; Steven Fogel, of SFC Desktop Business Systems; and John Livingston, of DOC Systems — and asked them to come up with a test that would exercise all the relational-database managers fairly.

David spearheaded the project (he's a longtime Mac expert whose license plate reads MAC SQL). According to him, a good relational-database manager can provide the kind of control a company needs in order to respond quickly to its customers. And that's good news, because whether you're contemplating a first-time buy, an upgrade, or a switch, the best strategy in a challenging business climate can often be a time-slicing, money-saving investment in software. 



David Beaver has the data on relational-database managers.

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There was a time when we all worked QMS-PS 1700 individually. We each had a computer and we each had a printer. Today, many of us work in groups. We choose our computers for their ability to perform well within networks. Shouldn't the same criterion now apply to our printers?

HOW TO SPOT THE TRUE NETWORK PRINTER AMONG A HOST OF IMITATORS.

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Proprietary software that resides within a 25 MHz RISC controller is what sets this printer apart from all others.

It handles PostScript® documents up to six times faster than the more common 68020 microprocessor.

And it's the heart of an architecture you'll find in printers that come from QMS and only QMS. We call it Crown.

Consider whether its benefits would help your group work even more efficiently.

The QMS-PS 1700 recognizes incoming data and selects the right printer language without troublesome software reconfigurations.

The QMS-PS 1700 connects to Ethernet® networks configured as DECnet®, TCP/IP, NetWare®, or EtherTalk™ protocols or to Token Ring configured to support the NetWare protocol. And it can be shared between multiple computers

The Rom card gives control over the



the LAN administrator printer's settings.



with different operating systems.

Its input buffers spool jobs so that host applications aren't hung up waiting for files to print.

The input capacity of the QMS-PS 1700 is 1,000 sheets. Output is 500. And there's an optional duplexer for two-sided work.

What's more, if a job is interrupted for any reason, this printer has the intelligence to reprint any needed pages and then continue.

Its context switching capability preserves "states," such as fonts and macros, when switching

between emulations so you don't waste time downloading them each time.

Font or emulation storage can be expanded with optional internal and external SCSI hard drives.

So the QMS-PS 1700 is much more than a laser printer. In fact, it's exactly what most work groups need but haven't been able to find. Until now. The QMS-PS 1700 is The Network Printer.

QMS

	QMS-PS 1700	HP III Si
Both 300 and 600 DPI resolution	✓	
Concurrent interfacing	✓	
Spooling	✓	
Context switching	✓	
Security system	✓	

You could compare the QMS-PS 1700 to the HP III Si, but there really is no comparison.



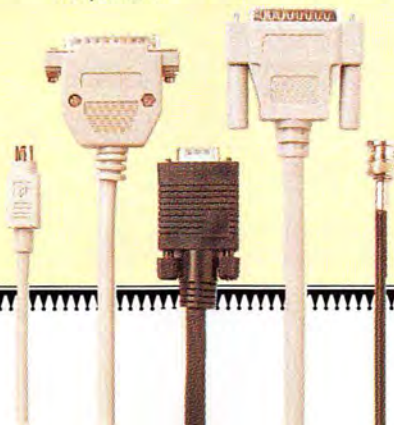
Multi-res lets you switch between the exceptional output of 600 dpi and the speedier 300 dpi resolution.

Crown architecture. Proprietary hardware and software design that make our printers The Network Printers.

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CIRCLE 160 ON READER SERVICE CARD.



When subscribers receive a copy of MacUser that's been damaged in the mail, they sometimes ask us to send a replacement. But Paul F. Doering, of Rochester, New York, surprised us with a different request: "My February issue arrived with its back cover folded aside and the adjacent page (Dvorak's column) completely missing. This is a giant improvement, and I'm willing to pay extra for this service each month." Sorry, Paul, an out-of-Dvorak experience is not the sort of thing money can buy.

✉ Write to Letters to the Editor, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404, or post your letter on the MacUser Forum of ZiffNet/Mac (also known as Zmac), our on-line service.

All letters become the property of MacUser, and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.

Seven Ups and Downs

Here's one secret you left out of your March '92 article "Top Ten Secrets of System 7" (page 213): Leave the software in the wrapper, and let the Mac do some real work. When I bought a IIsi, I couldn't find a single Mac user using System 7, including people who make their living with their Mac in publishing or graphic design. The dealer from whom I bought my Mac assured me that downgrading to System 6 was, unfortunately, rather common among serious users.

I enjoyed System 7 while I ran it, but what I really enjoy is opening Adobe Photoshop and not getting a "do you really want to risk this with your measly 5 megabytes of RAM?" message. Those may not be the exact words, but it is exactly Apple's message.

Doug DuBosque
Molalla, OR

I got a big smile on my face when Guy Kawasaki said he's still running System 6.0.5 ("Masters of Macintosh," February '92, page 33). I thought I was a freak by not running System 7.

I've been slowly upgrading all my software to System 7-savvy stuff, but with everything I've read about it, I'm in no real rush. As Guy said, let others work the bugs out and I'll make the move when it's proved to be a more stable environment.

David Bill
Clemson, SC

There I was, being bombarded on all sides by Mac hype such as "don't get a Quadra, because you'll be stuck using System 7." *Au contraire* . . .

System 7 is great! So what if half of my software didn't work when I got my Quadra 900. Most of it was because of the 68040 processor, not System 7. A few quick phone calls to software companies revealed that everyone already knew of the problems and had fixes on the way. In less than a week, I had all of my bugs fixed. When I called the Adobe people, they told me that they had just received my warranty card and figured that I would be having some problems. They were already planning to send me the ATM fix before I even asked! I was able to use the Quadra effectively before I got the new software versions by switching off the 68040's cache and 32-bit addressing.

In fact, the only thing I dislike about System 7 is that my 25-megahertz 68040 powerhouse doesn't multitask as well as my 8-megahertz 68000 Amiga 2000 did.

Paul Saccone
Paoli, PA

'Which?' Doctors

I'm weary of reading in this and every other *MacSomething* magazine how pathetic PCs are. Your March '92 article on CPUs ("Shopping for the Right Mac," page 128) gets to this subject already in the second paragraph: "If you are searching for the perfect

Dear Mr. Sculley . . .

The Mac LC has reportedly become the biggest-selling model in Apple's line-up, outpacing even the low-cost Classic II. Inquiring minds (such as Apple CEO John Sculley's) want to know why.

Speak Up: Which Mac model offers the best balance of price and performance to suit your needs?

✉ Send your thoughts to Dear Mr. Sculley, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

In the March '92 issue, we asked how Microsoft could improve its reputation among Macintosh users. Brian Marantz, of Salt Lake City, Utah, wrote in with comments aimed mostly at the latest release of Word: "I have a perfect way for Microsoft to get back into the 'good graces' of Macintosh users. It should first stop bashing its competition and instead worry about releasing bug-free software. Word 5 is so full of bugs that I have to wonder about Microsoft's testing department."

We think we heard a tremor in the voice of

Joshua Knorr, of Newark, New York: "Remove your Windowed serpent from our paradise before it eats our Apple."

Most of the letters addressing this question listed reasons for disliking Microsoft and ways to restore a good name. Steve Herzog, of Ceres, California, instead aimed his complaint at *MacUser*: "Your continual Microsoft bashing stinks. Please stick to the facts. I just spent a satisfying afternoon remapping my keyboard for Word 5, turning it into a customized word-processing, book-writing power tool. There's nothing better, and there's no way Word is anything less than a beautiful piece of software."

"Let's also stop all this carping about high upgrade costs. Personally, I don't care if Bill & Co. do charge \$129 for Word upgrades. If Microsoft uses that money to employ the best programmers and keep improving my product, it's money well spent. (And yes, I hope that Bill Gates does make another billion dollars!)"

"What can Microsoft do to get back in the good graces of Macintosh users? For starters, ignore the wimps and whiners (competitors and editors) in your rearview mirror and continue focusing attention on us users."

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CIRCLE 97 ON READER SERVICE CARD.

LETTERS

personal computer, the question isn't "Should I buy a Mac or a PC clone?" but "Which Mac should I buy?"

Are Macintosh users so insecure that they cannot simply say that they love the Mac without having to run down PC users in the process?

David Pitts
Charlotte, NC

In "Shopping for the Right Mac," you advise readers who need more power for spreadsheet tasks to buy a faster Mac. At least some of the time, this advice is wrong. At least some of the time, the right move for heavy spreadsheet crunching may be the same one you recommended to readers who need a portable for word processing: Buy DOS.

We found this out when our firm had a job for which the only Mac contenders looked like the IIfx and the IIfx. The job on a Compaq 386 DOS machine running at 20 megahertz took about the same time as it did on the IIfx. The cost for the Compaq, including monitor, Windows, and Excel, was less than \$2,000!

Martin B. Tittle
Ann Arbor, MI

Choose a DOS laptop over a PowerBook to save money ("Shopping for the Right Mac")? Heck, why stop there? Why not also save the additional cost of that Macintosh-to-PC file-transfer utility you needed for the DOS laptop? In the same issue, John C. Dvorak alludes to considering a 486 PC clone that costs \$2,500, instead of a \$10,000 IIfx ("The Ferrari Phenomenon," page 308). Think PC, John, PC.

Anthony Soave
Indianapolis, FL

The sidebar "Recycled Macs" (page 134) in the article "Shopping for the Right Mac" omitted the Spectre GCR Mac Emulator for the Atari ST, from Gadgets by Small. The emulator is a ROM cartridge that plugs in to the left side of the Atari and requires that a set of 128K Mac ROMs be plugged in to two empty sockets. The cartridge (not including the Mac ROMs) costs \$300. Because the Atari has a faster clock rate under Spectre GCR, it outruns a Mac Plus by 20 percent, even with a larger screen.

The Spectre GCR's creator, David Small, has also developed a device for very fast access to hard drives, called Turbo SCSI, which outperforms the Mac

Plus it emulates. Once you've added a Spectre GCR to one of the impressive new Atari ST-Book portables, they'll be the cheapest Mac portables around.

Jack H. Bayne
Somerville, MA

You won't find Macintosh ROMs at any Apple dealer, because Apple strongly discourages their resale. If you don't have an old Mac you want to cannibalize, you can contact Gadgets by Small (40 W. Littleton Blvd., #210-211, Littleton, CO 80120; [303] 791-6098) for an up-to-date list of Mac ROM sources. — JR

In the helpful article "Shopping for the Right Mac," I noticed a small error in the table on page 138. The table indicates that there is no caps-lock indicator on the PowerBook 140 or 170. Although it's true that there's no caps-lock light on the keyboard, there is a Caps Lock extension that comes as part of System 7.0.1. It displays an up arrow in the menu bar when you press the Caps Lock key. For touch typists, this is even better than a keyboard light, because they look at the screen, not at the keyboard, when they're typing.

T. David Gordon
Nashua, NH

There was an error in your informative sidebar "RAM Rules" (page 140) in the article "Shopping for the Right Mac." You stated that "a megabyte is 1,024,000 bytes, not 1,000,000 bytes." Of course, 1 kilobyte is 1,024 bytes, and a megabyte is 1,024 kilobytes, which works out to 1,048,576 bytes.

Jerry Dungee
Montgomery, AL

Stacks for Macs

I'm sure the HyperCard stack you recommended downloading from ZiffNet/Mac ("Shopping for the Right Mac," March '92, page 128) that describes the different Macs for potential Mac purchasers could indeed be helpful to someone unfamiliar with the Macintosh world. But how are people looking for their first Macs supposed to get and use this information?

Tracy E. Finifter
Mays Landing, NJ

The downloadable stack was designed mainly for Plus and SE owners who are feeling a RAM, speed, or memory pinch and need to upgrade. For new Mac buyers and those without modems, we plan to make the stack available to Apple dealers

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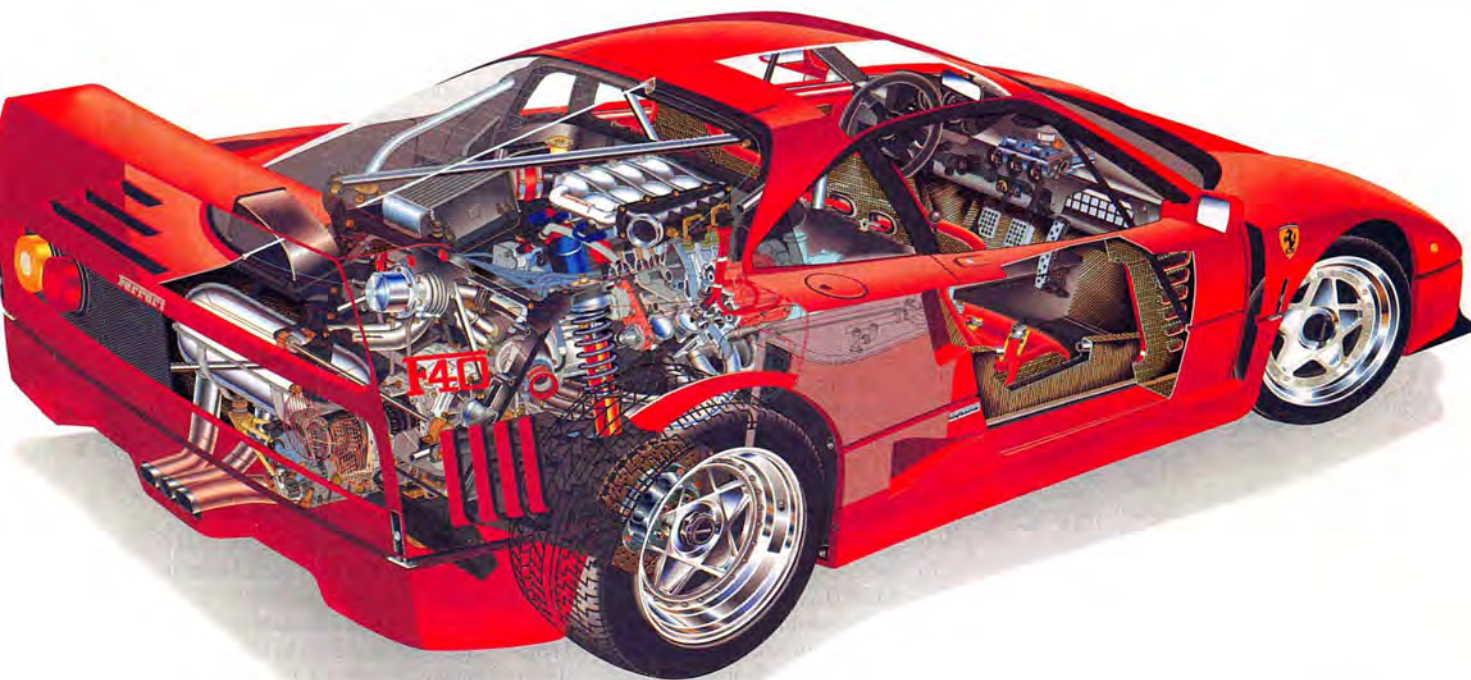
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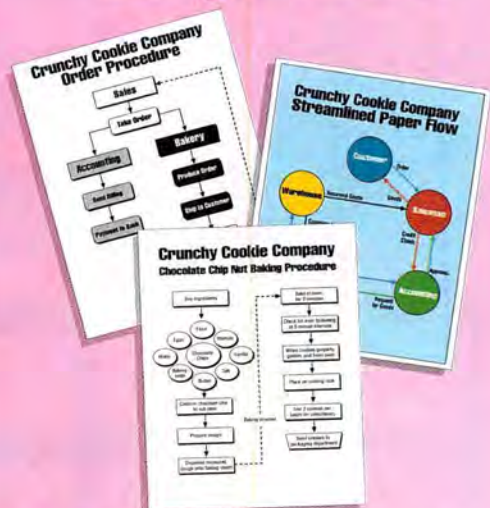
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CIRCLE 98 ON READER SERVICE CARD.

LETTERS

for use in their stores. Additional stacks to help you evaluate printers and hard drives are coming later this year. The Mac stack is available on ZiffNet/Mac in the Download & Support Forum (GO DOWNTech) in Library 7 (Reference) under the filename WchMac.SEA. ZiffNet/Mac is hosted by CompuServe. — BT

Time to Split

In "The Mouse That Bored" (March '92, page 33), Michael Swaine points out that those who rely on spelling and grammar checkers to find all errors will be exposed as illiterates. He goes on to say that learning our native language is something we have to do for ourselves or hire people to do for us.

I agree fully. However, there is a peculiar irony when he writes, "To fully check the grammar requires knowing the intended sense of the document." This sentence contains a split infinitive. Perhaps the intended sense of his document is for people who understand the subtleties of splitting infinitives. I hereby apply for the job of learning Mr. Swaine's language for him.

Chris Offutt
Iowa City, IA

Thanks for the offer, but the position has already been filled by one George Bernard Shaw, who advises that "every good literary craftsman splits infinitives when the sense demands it." The stricture against splitting infinitives never made any sense and persists today only as a sort of living fossil of bonehead grammar. — MS

Tax Assessment

The latest version of MacInTax, the world's greatest tax-preparation software (April '92, page 76), has undergone a fairly large metamorphosis since its purchase by ChipSoft, the folks who publish TurboTax. For some strange reason, the application has grown from less than 100K last year to more than 500K this year. New features have been added, but there's a price. It no longer runs on a Fat Mac, a 512Ke. (In fact, ChipSoft technical support doesn't even know what a Fat Mac is.) Also, the preliminary versions of MacInTax were a bit buggy, sometimes giving incorrect results. I hope that being gobbled up by a predominantly IBM company doesn't do this to any other Macintosh applications.

Craig Peterson
Santa Monica, CA

MisStatement

Philip Bishop's "Beyond Cut-and-Paste" article (February '92, page 262) was interesting, but I have to point out that his charts on flower sales list the six New England states as Maine, Massachusetts, Rhode Island, New Hampshire, Vermont, and New York. Flower lovers in Connecticut aren't going to like being dumped in favor of New York, especially by a Rhode Island-based graphic designer and writer.

Craig Federhen
Savannah, GA

No disrespect was meant to the Nutmeg State, which many justly consider the flower of New England. — PB

Troubleshooting Trouble

After spending more than a week trying to determine why my laser printer couldn't do background printing without a system crash, I turned to Kurt VanderSluis' "I Can't Print" article with urgent interest (Trouble Shots, March '92, page 199). At last, the answer!

Imagine my disgust when I learned that I would need to wait until the next issue for solutions. Perhaps VanderSluis was as solutionless as I was.

Frustrated, I returned to the Mac. Another day of trial and error brought success — the culprit was a shareware screen saver. Once I'd removed it, I could background-print to my heart's content. Now if somebody can tell me why this is the case . . . but perhaps that's a few issues down the road.

Louise K. Mann
Farmington, CT

Because networks involve a great number of components in complex interdependency, there are many possible causes for any symptom. The cause of my problem turned out to be very different from the cause of yours. That's why it's important to learn the general techniques, not just the specific symptoms, of troubleshooting to help you pinpoint your precise problem. — KV

Invitation to Inventory

We were very pleased to read that you recommended OffLine 2.1 over the other cataloging utilities (March '92, page 54). However, you discussed several capabilities with reference to the other products but not to OffLine. For example, OffLine supports all the leading compression formats, including StuffIt, Compact Pro, DiskDoubler, AutoDoubler, SuperDisk!.

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CIRCLE 169 ON READER SERVICE CARD.

LETTERS

and AppleLink. And despite the reviewer's comment to the contrary, OffLine doesn't limit users to a single catalog but allows an unlimited number.

OffLine 3.0, which has been shipping since January '92, represents a major revision to the program. The user interface is quicker and smoother, the program's search capabilities are even more powerful and flexible, and the catalog contains more information about files (such as Finder comments, which can also be added or searched). OffLine 3.0 also reports version numbers for every program it catalogs. Additional new features include a Finder-like browse capability and the ability to find all the duplicated files on a user's disks.

David L. Ransen, President
SNA, Inc.
Princeton, NJ

Guy Talk

I'm drawn to columns such as Guy Kawasaki's, because they're humorous and personable. I've always accepted Mr. Kawasaki as being unconventional and somewhat eccentric, but isn't it a bit ungrateful for a columnist to insult the readers whose very loyalty pays for his bread and butter ("Help!," March '92, page 29)? Forgive me, Guy, if I insult you by imagining that you would care about my experiences with technical support. I would like to see a comprehensive study of the experiences of Macintosh users in obtaining technical support from major hardware and software manufacturers.

Barbara S. Andrews
Toledo, OH

It's because I do care about the technical support you get that I wrote the column. Neither MacUser nor I can fix specific problems. So rather than mislead readers, I'm trying to tell them straight out, in the most pragmatic, personal, and human way I can, how to get good tech support. I'm sorry if I insulted you in the process. To provide the kind of information you've requested, MacUser's lab reports are adding more coverage of each vendor's tech support. — GK

The Blackboard Bungle

An old business acquaintance of mine had a sign hanging in his office that read, "Engage brain before starting mouth." I'm afraid it's time for Mr. Dvorak to read the writing on the wall.

Dvorak seems to suggest in "Failing Grades" (February '92, page 372) that

throwing more technology at schools will solve the problem of computer underutilization. Extending this concept to its ridiculous extreme, a Sun SPARCstation in every classroom ought to produce enough enthusiasm to turn out a generation of young Einsteins.

Garry Howard
Calgary, Alberta
Canada

John C. Dvorak's dismay about the state of computers in education ("Failing Grades") is well founded. If Apple had pushed the Macintosh in education earlier, there would have been many unused Macs. Teachers must be inspired first; then they will demand the hardware and curricula they need. Although there do exist inspired and inspiring teachers, they are the exception. Generalizations such as those quoted by Dvorak are not built from exceptions, nor do they compensate for a majority of mediocrity.

Tom Pittman
Spreckels, CA

If computer companies want to sell their products in the educational market, they'll have to tailor their products, pricing, support, and advertising to that market. Here are some ideas: (1) Forget the multimedia hype. Aim to sell lots of less capable, less expensive machines rather than a few highly capable, more expensive machines. (2) Develop appropriate educational software, preferably in tandem with a textbook publisher. (3) Advertise and promote educational software more widely and prominently in places such as *MacUser*, not just in specialist journals.

E. James Kehoe
Kensington, New South Wales
Australia

Clarifications

The correct list price for Apple's Macintosh 16-Inch Color Display (New on the Menu, March '92, page 40) is \$1,599.

In the "Features of Network-Administration Tools" table (February '92, page 242), the criticism of awkward copy protection was intended for Distributed Technologies' TalkManage, not Farallon Computing's TrafficWatch II. Also, contrary to what was stated in the table, TrafficWatch II is AppleTalk Phase 2-compatible.

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too.) Plus its revolutionary display gives you 25 different status reports! And for just a little more, you can easily add caller ID and voice capabilities later this year. In addition to the \$399.95

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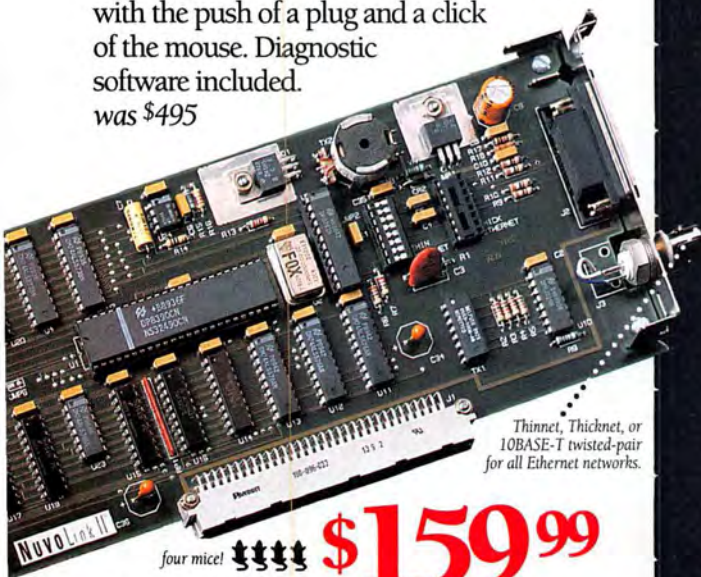
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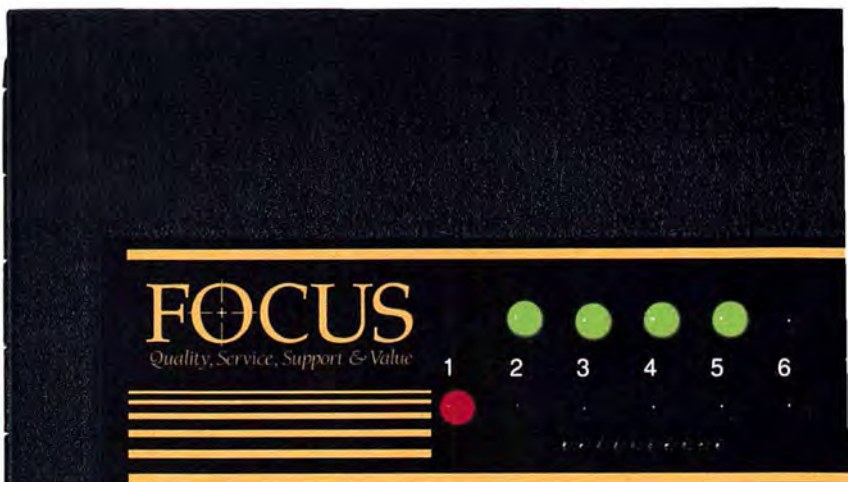


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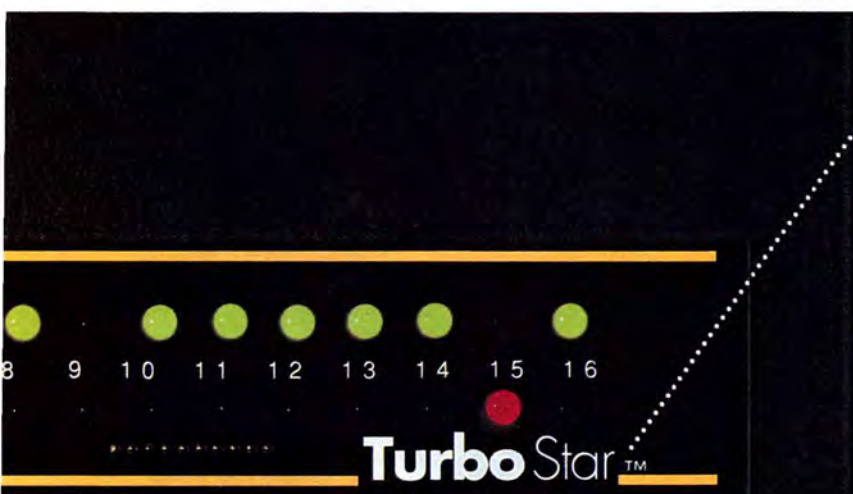
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How's Business?



How to become successful in business: Step 1 — get a Mac. Here are nine more simple steps that leverage your investment in your Mac.

The secret to success in business is to make Top Ten lists. Or, at least, the secret to success in writing about business is to make Top Ten lists. Everybody's got a ten-step list for business success, and I'm no exception. If you've got a Mac on your desktop, you can already check off the first item on my list. Here are the remaining nine:

2. It's Hammer Time. This month's Business-Software Buyer's Guide provides a comprehensive evaluation of the tools available in each of the major categories of software you probably already use to run your business: word-processing, spreadsheet, and database-management packages and integrated-software packages that combine all of the above. But don't let your search for the perfect software tools end there.

When the only tool you've got is a hammer, every problem looks like a nail. And if the only software you've got (or know how to use) is a spreadsheet program, everything looks like rows and columns.

Until a decade ago, anybody who whipped out a spreadsheet in public was either a certified public accountant — or was certifiable. Nowadays, spreadsheets are everywhere: The other day, I was standing in the checkout line at Safeway waiting for the shopper in front of me to finish a recalc on his palmtop to help him decide between paper and plastic.

Spreadsheet programs are useful tools for analyzing two-dimensional data, but most business information is more complex. Don't overlook the lesser-known but more specialized software categories — such as resource schedulers, project managers, statistical-analysis and -exploration software, and sales-automation packages — that may be better suited to your information needs.

3. Things Are Looking Up. Mac users are notoriously opposed to the concept of looking it up. But all software packages come with manuals designed to make you a more informed — or at least a less uninformed — user. These manuals may not always be great works of literature, but the information you need is usually buried somewhere in them. And you'll get more out of your software investment if you work with the packages instead of against them.

If you find yourself frustrated by a manual that defines its impenetrable jargon with equally impenetrable jargon, cheer up: Things could be worse. Imagine how it would be if software manuals were written by the same

people who wrote the instructions for your multifunction digital watch — you know, the flimsy sheet of paper that purports to explain how to operate the thing by explaining, "First, the time-setting knob is depressed." By the time you've finished trying to set your watch, it's you who's depressed.

4. One Ringy-Dingy. Get a modem. Using a computer without a modem is like running your business without a phone. Sign up for some on-line services. (ZiffNet/Mac, the home of *MacUser's* own on-line service, is a good place to start; sign-up information appears elsewhere in this issue.) If you think that on-line services are too expensive, consider: In the early days of the telephone, one successful businessman predicted that the telephone would be a dismal flop. After all, he explained, it was so expensive compared with the option of communication via messenger boys.

If information is your business's competitive edge, knowing how to get and use up-to-date information quickly and easily is your competitive edge over your competitor's competitive edge.

5. Two Ringy-Dingys. In the early days of the telephone, the competing phone networks didn't interconnect. If you wanted to be able to reach different people served by different phone companies, you had to have a separate phone for each network. The successful businessman of the day impressed his colleagues and clients with the number of phones he had on his desk, one for each network. He also wasted a lot of time trying to figure out which phone to pick up whenever he heard one of them ringing.

If you subscribe to more than one E-mail network, get an E-mail gateway to bridge all of your services (see "The Global Network: E-Mail Gateways," April '92, page 142). Otherwise, you'll spend all of your time logging on to check your messages on all of your various time-saving communications services.

6. How the Other Half Lives. Get a Windows computer. You'll learn something. You'll see how the other half (make that 85 percent) lives. You'll have more appreciation for what you've got. You'll see how the gulf between Mac and Windows is closing, and you'll know exactly what to complain to Apple about. And you'll impress your colleagues and clients with the number of CPUs on your desk.

7. Share the Wealth. If you don't belong to a local Macintosh user group, join one. If

there isn't one in your area, start one. User groups are great resources for sharing information about what's new, for troubleshooting problems, for locating local resources (such as service bureaus and consultants), and for distributing the

vast libraries of Mac shareware and freeware products. To locate the user group nearest you, call (800) 538-9696, ext. 500.

8. Budget for Growth. What's the best \$50 investment you could make to

get more out of your Mac? How would you spend \$100? \$1,000?

The answers — more memory, a cache card, a CPU upgrade, printer RAM, System 7, an accelerator board, a software upgrade — depend on your needs and on your current configuration. Decide what you need most, and budget for it now.

9. The Human Factor. Many Mac users spend hours tailoring their Mac's desktop — adjusting the desktop background pattern, altering the way icons are arranged, lining up folders to just the right spot, and so on. But do you spend as much time optimizing your *real* desktop?

The physical layout of your desk and your work space makes a big difference to your productivity. Herman Miller, the office-furniture maker, has developed a prototype software package that asks you a battery of questions about your personality and your work. The software then performs a bit of instant psychoanalysis and recommends office-layout options that will provide the best fit for you, your work, and your work space. The results are surprisingly useful and concrete.

Although the software won't be generally available for some time, you can probably make some improvements just by doing a little self-analysis and rethinking the placement of all of your computer tools for maximum productivity and ergonomic comfort.

10. Dump the Desktop. I've never seen a desk on which all the documents were neatly lined up in carefully labeled folders stored in carefully labeled bigger folders, all precisely aligned in a geometric pattern.

Apple is investigating an alternative desktop metaphor, code-named piles, based on the way most people really deal with the mountains of paperwork on their desks — in seemingly random piles, a foot or two high, scattered around their desk and on the floor.

I hope the piles approach will be smart enough to tidy up after me. When I choose Clean Up Desktop, I want my Mac to file things appropriately, provide a report about where it put everything, automatically route copies of my documents to the right people, print out drafts, and so forth, based on parameters I've laid out.

Once we can count on our Macs to "clean up" after us by taking care of routine details, we'll be free to spend more time pursuing the creative and productive pursuits at the heart of our work — thinking up Top Ten lists, for instance. . . .

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The ProColor 32 is a single-slot display adapter that provides everything color professionals need for increased productivity when working with large color images: unsurpassed speed of CMYK-to-RGB conversion, improved on-screen color, reduced storage requirements, QuickDraw acceleration, RAM-disk support and a connector for add-on enhancement boards.

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The black channel is stored in this bank of V-RAM chips. RGB images contain no black information.



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Ordinary 1 or 4 MB SIMM chips may be added to create up to 8MB of GWorld-RAM for quick handling of large images.



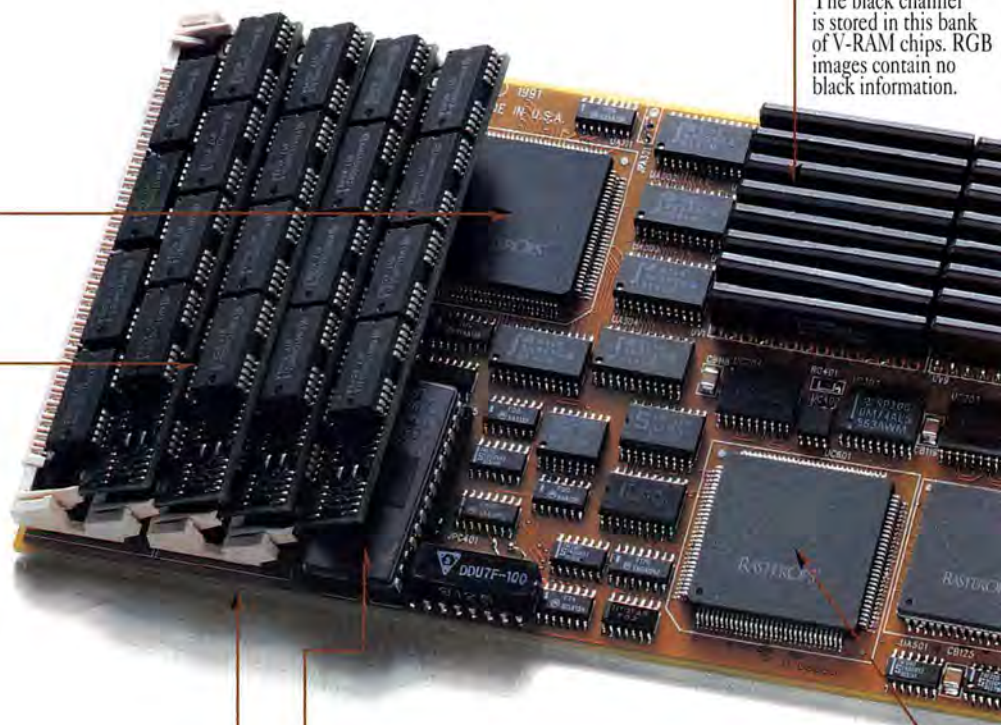
SMOBC

High quality solder-mask-over-bare-copper board construction (SMOBC) is the ultimate in durability and reliability.

GAMMA CORRECTION & DIRECT SET ENTRIES



Sets monitor gamma and provides multiple display default settings for QuickDraw.



HARDWARE PAN & ZOOM

Smooth panning and 1X, 2X, 3X...up to 16X zoom functionality provides the perfect tool for detailed image retouching.

RISC

INTERFACE FOR OPTIONAL RISC ACCELERATOR

The ImagePro daughterboard is a programmable 40MHz RISC accelerator for use with the ProColor 32. The ImagePro also provides real-time JPEG compression and decompression.

TEROPS PROCOLOR 32

HARDWARE SOLUTION FOR CMYK-TO-RGB CONVERSION

The ProColor 32 dramatically reduces the time and memory required to convert images from CMYK to RGB format by eliminating the need for time-consuming software conversions. Images in cyan, magenta, yellow and black (CMYK), the color space used for color separations and printing, are converted to red, green and blue (RGB) for display on your monitor using VLSI chip technology. By performing the CMYK-to-RGB conversions on-board, the ProColor 32 accelerates the conversion and eliminates the need for software to store both CMYK and RGB data in system or hard-disk memory.



ADVANCED 9-BIT DAC

The 9-bit digital-to-analog converter (DAC) allows for gamma correction to be made without any on-screen color degradation.



In a CMYK image, the magenta channel is stored here. When working with an RGB image, the blue data is stored here.



In a CMYK image, the yellow channel is stored here. When working with an RGB image, the green data is stored here.



In a CMYK image, the cyan channel is stored here. When working with an RGB image, the red data is stored here.



The custom ASIC chip instantly converts CMYK data to RGB for screen display, bypassing time-consuming software conversions.



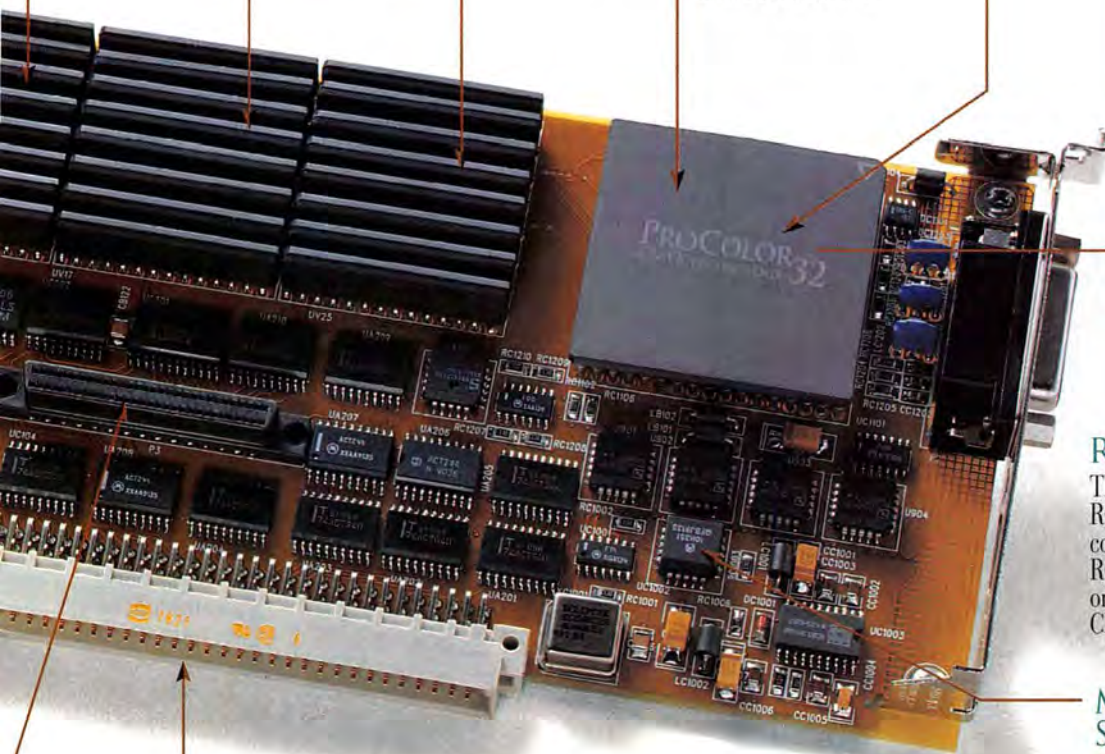
RGB MODE

The ProColor 32 supports both RGB and CMYK modes, providing complete compatibility with existing RGB software as well as simultaneous on-screen display of both RGB and CMYK information.

MULTIPLE MONITOR SUPPORT



Variable Clock Generator provides support for monitors ranging in size from 13" to 21".



BUS MASTERING

The ProColor 32 accelerates other boards you may have in your system.

RASTEROPS®

THE ART & SCIENCE OF COLOR™

Coming soon to a screen near you.



Out of memory.

OK

If you think the only way to avoid running out of memory is to avoid running a couple of your favorite applications, think again.

Think about all those memory-hogging fonts and sounds you've got stuffed into that bulging System File.

Then do what over 200,000 resourceful Mac users do every day.

Instead of closing your applications, open a Suitcase.™

Suitcase is the award-winning utility that lets you park your growing collection of fonts, DAs, FKEYs and sounds *outside* the System File.

Thereby giving you the maximum amount of memory for running more applications, building bigger documents and doing other useful things.

What's more, Suitcase compresses your screen font and sound files by up to 60%.

Thereby giving you that much more precious disk space to work with.

It even lets you put your screen and printer fonts on a server for all to share.

Thereby making each disk on the network that much more spacious.

The more resources you have—and the more organized you are—the more memory and disk space you'll save.

But whether your dividends are measured in megs or merely in Ks, Suitcase is guaranteed to save you gigabytes of aggravation.



Even if you're operating in System 7.

Because System 7 still stuffs your resources into your System File.

And System 7 still makes you close down all your applications and restart your Mac each time you install a new font.

Which is a real pain in the, uh, system.

Suitcase, on the other hand, gives you unlimited access to all your resources.

And total control over how you organize them.

Each suitcase can pack up to 800 fonts, 64 DAs, and any number of FKEYs and sounds.

You can group suitcases into sets, then summon all the luggage that

Can't remember the difference between Versailles and Monaco? Not to worry. Suitcase displays your typefaces right in the menu.

belongs with a particular project at the click of a mouse.

Tips are optional. But here's one for those of you who find font ID conflicts even more irritating than running out of memory.

Get Suitcase. It eliminates them.

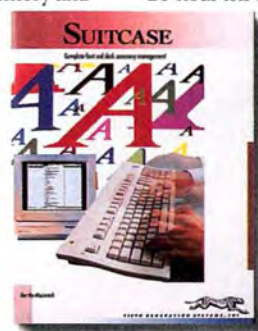
Call us at 1-800-666-2904.

We'll tell you about our vaunted 24-hour toll-free technical support.

We'll also tell you that Suitcase is backed by a one-year money-back guarantee.

So you can be sure this baggage will live up to its claims.

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Chicago
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Futura
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Janson
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Get a Job



What three things should you never do if you want a job in the Macintosh industry? Hint: One of them involves working for Apple.

This column will explain, in 1,600 words, how to get a job in the Macintosh industry. I'm writing it because I get nearly 100 letters or E-mail messages each month from young people asking for career advice. You won't get this advice from any book or job counselor, because the Macintosh industry isn't "any" industry.

Start your product development early. Think of your education as product development. Don't wait to start worrying about your job search until immediately before you ship — that is, graduate. The time to start is the summer between your freshman and sophomore years of college.

Every summer, while your buddies are getting tanned and drunk in Ft. Lauderdale or Palm Springs, you should intern at any company that will take you. Work for free if you have to. Shine John Warnock's shoes. Empty Paul Brainerd's trash can. Clean the Windows at Microsoft.

At the end of three years, you'll be able to document your experience in the Macintosh community. Along the way, you should be able to pick up a good recommendation or two. Maybe one of the companies will even hire you. Getting a job is like dehydration: If you're thirsty, it's too late.

Don't start out working for Apple. Many graduates think that working for Apple is the coolest thing. It can be, but you can also seriously and permanently damage yourself. This is because Apple's idea of new-employee training is to throw people into the water and see who can swim. You won't get managed. You won't get trained. You won't get mentored.

If you can "swim," this can work to your (temporary) advantage. You may, for example, start as a college hire and end up managing a group within three months. You'll think that this is the fast track, that you've found a company that appreciates your management potential (at age 22), and that working for Apple is like being paid to go to Disneyland.

The problem is that the real world isn't like Disneyland. You'll start *believing* that you know what you're doing, and you'll turn into an Apple puke. And, until you get laid off, you'll have delusions of grandeur that will pervert your mind. Someday, when you discover the real world or the real world discovers you, you'll be in deep trouble.

Instead, go to work for a company, such as Proctor and Gamble (or even IBM), that has a training program. Unless you work for an

organization that has tradition and discipline, you won't fully develop your skills. And you'll never fully appreciate how great it is to work for an Apple unless you've worked somewhere else.

The first job doesn't matter. And the second one doesn't either. Too much emphasis is placed on finding the "perfect" first job, because you think you're going to work your butt off for a few years, cash in your stock, and retire when you're 30.

Instead, don't be picky and proud: Just get a job — even a lousy one at a good company. Then work hard, and transfer to a better job. Face it: The difference between most graduates and a can of Alpo is that the can of Alpo has content. The crucial step is *getting in*, not *advancing*. Burrell Smith, the wizard who designed the original digital boards for Macintosh and the LaserWriter, was working in Apple's service department when Jef Raskin recruited him to work on Macintosh.

If you want to try the theory of "just get in," go to work for a Macintosh temporary agency. Sooner or later, you'll get an assignment at a Macintosh company. Do a good job, and the company may offer you a job. Do well. Get promoted. And remember me when you're rich and famous.

Take the shotgun approach. The goal of a job search is to get a job, not necessarily to get a job *through established and official procedures*. Everyone knows that you're supposed to apply through the personnel or human-resources departments. But there are many people competing with you: Apple Computer, for example, gets as many as 10,000 résumés every month. (This column might reduce that number.)

If you color only within the lines, you'll get what life hands you. I recommend coloring anywhere there's paper. This means contacting nonpersonnel people such as technical-support engineers, salespeople, and executives. The more shots you take, the more shots you'll make.

Don't be afraid that a company is so coordinated that all your applications will be forwarded to one person who'll say, "This jerk has applied all over the company. He won't get past me."

Don't take the shotgun approach. There is one place where you shouldn't use the shotgun approach: the description of your qualifications. Many peoples' résumés claim "expertise in SQL, PageMaker, Photoshop,

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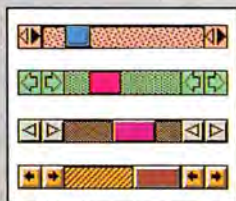
ClickChange Cursors. Replace the 5 factory-issue cursors with fully animated custom cursors. Put some fun into waiting (well, OK—at least ease the tedium). Design your own cursors, and amaze your friends!



ClickChange Buttons. Tired of those flat 50's style Mac buttons? Slip on one of our sleek, modern, 3D designs. It's what the next generation of computers is wearing these days.



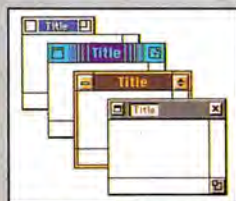
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GUY KAWASAKI

QuarkXPress, 4th Dimension, MacDraw, Microsoft Word, and Lightspeed C." What doesn't the person know?

The corporate reaction to this kind of shopping list of qualifications is, "Yeah, right. Another overinflated know-it-all who's God's gift to computers." Expertise — true expertise — in any one of these products is good enough. Saying that you're an expert in all of them is a case of "more is less."

Such people as Ole Kvern, Robin Williams, and David Blatner have spent years learning FreeHand, PageMaker, and QuarkXPress. Do yourself a favor, and watch *The Karate Kid* before you write your résumé. Then go learn one or two programs extremely well. You'll know you're good when you feel like writing a book about using the product.

In your job application, mention only the products you know very well. Underpromise and overdeliver on your expertise. Bring up your breadth of knowledge in the interview — not in your cover letter and résumé.

Don't drop names. Many applicants drop people's names to try to get in the door: "John Sculley loved my HyperCard stack," "Steve Bobker said I'm the best PageMaker designer he's ever met," or "Jean-Louis Gassée really liked my database designs."

Dropping names seldom works, for two reasons. First, who cares what Sculley, Bobker, Gassée (or Kawasaki) thinks? At this point, they (we) are all living off our reputations.

Second, if a company checked with Sculley, Bobker, Gassée (or Kawasaki), it'd find out that they might not remember meeting the person. This is because being a Macintosh figurehead means meeting thousands of people every year, and no one, not Sculley, Bobker, Gassée (or Kawasaki) can remember meeting everyone — no matter how incredible they are.

Sculley, Bobker, Gassée (or Kawasaki) are required to be polite and attentive, however. A person who interprets this behavior as "He really likes me. He'll really go to bat for me" is being deluded. I don't know what Sculley, Bobker, or Gassée do when someone calls them for a reference, but I often tell the company that I have no idea who the person is.

Drop the graphics, fonts, and photographs. Keep your cover letters and résumés short and simple. Most letters and résumés are one page too long — that is, they're two pages. No one — not Steve

Jobs, Lee Iacocca, Akio Morita, or George Bush — needs more than one page for a résumé.

Also, drop all the special effects: the scanned image of your face; the outlined, shadowed, boldfaced fonts; and the fleur-de-lis border around the edges. Just because PageMaker can do it doesn't mean it's appropriate for a job search.

Use a sans serif font for the headings and a serif font for the body, and be done with it. Some companies scan in the résumés they receive. You may think you're impressing a recruitment person, but you're actually confounding a scanner. One page. Two fonts. No graphics. *Capisce?*

Go with the flow. These actions lead up to one goal: getting an interview. You have only one thing to accomplish in it: show that you want to change the world in a manner that is consistent with the company's vision. Here are the keys to an effective interview.

1. Prepare. Read everything you can about the company. This is a no-brainer, and every book written about job searches says it. Most graduates must have no brains or cannot read, because hardly anyone does this. You have to know the company's vision before you can show how you can fit into it.

2. Shut up. Let the interviewer do 80 percent of the talking. You want the interviewer to think you are quiet and thoughtful, not loud and brash. I never heard of anyone saying too little in an interview.

3. Listen. Many interviewers will tell you what they want to hear. For example, "We value team players at MegaloSoft." The right response: "It would be an honor to join the MegaloSoft team. I think I could really learn a lot from others and make a solid contribution too." The wrong response: "My professors have always told me that I am a genius programmer. They say that my code is art. When do you think I can head my own engineering team?"

4. Follow through. Also a no-brainer. Within a day of your interview, write a thank-you letter to everyone who interviewed you. Again, hardly anyone does it.

Last Resort

If all else fails, go to work for a DOS or Windows company. I hear they have lower standards. And if you make a lot of money, give some to your parents for taking care of you all these years. Then go change the world. ☞

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SHARP
COMPUTER PROJECTION PANEL
QA-1050

SHARP
QA-1050 - COMPUTER PROJECTION PANEL

At Last, An LCD Projection Panel With All The Colors You Need To Get Your Presentation Moving.

The Sharp QA-1050. 185,000 Colors For Crisp Computer Images
And Live-Action Video.



Even the most complex multi-media presentations run smoothly with the Sharp QA-1050. Its 185,000 colors and TFT Active Matrix Technology guarantee computer and video images of unparalleled realism. And animated graphics and live-action sequences that move without ghosts and shadows.

The Sharp QA-1050 offers almost universal computer compatibility, including VGA and MAC® II. And, it also offers the convenience of remote control. In short, everything you need to present what no panel could present before: dramatic, true-to-life, full-motion color.

So, contact your local authorized Sharp Industrial LCD Products Dealer for a demonstration or call 1-201-529-8731. Fax 201-529-9636.

SHARP
FROM SHARP MINDS
COME SHARP PRODUCTS™

CIRCLE 51 ON READER SERVICE CARD.

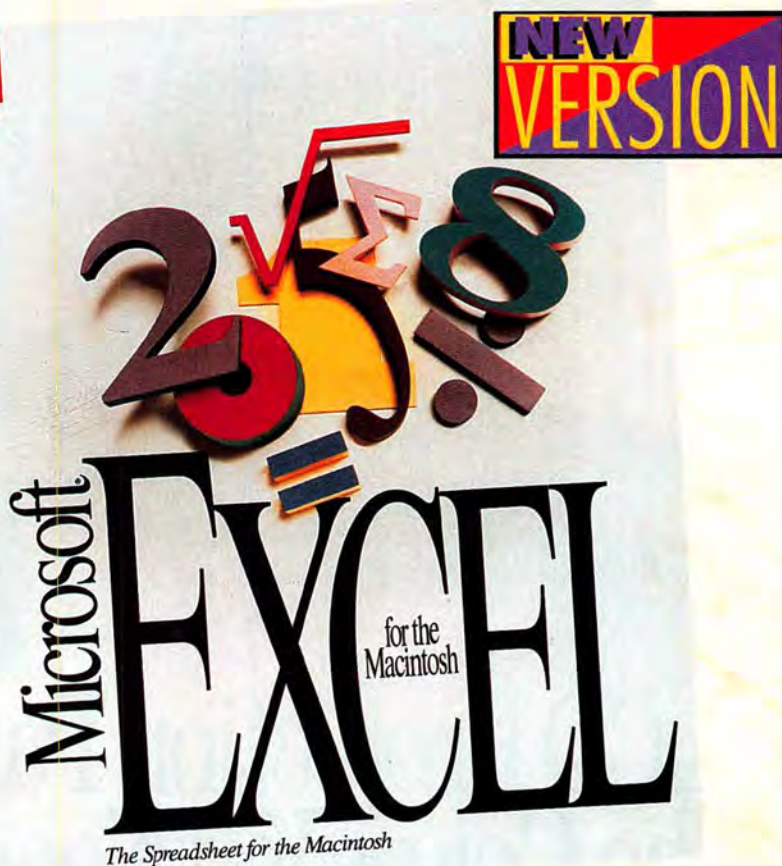
The Mac Zone
Established 1986

At the Mac Zone, we provide you with more than just great prices and the widest selection available—we have the service and support to earn your continued business.

Our Mac Advisors speak: French, German, Japanese, Korean, Spanish and Scandinavian languages.

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- Knowledgeable sales advisors
- Personalized service
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\$298

Move up to Microsoft Excel 4.0 for the Apple Macintosh

The leading spreadsheet for the Macintosh just got even better. Microsoft Excel version 4.0 for the Apple Macintosh was designed with you in mind. It gives you access to more powerful features and makes everyday spreadsheet tasks easier than you ever dreamed possible. Microsoft Excel is designed to work the way you do, and provide you with all the tools you need. Just look at some of the new features Microsoft Excel version 4.0 offers:

- **Even easier to use:** Produce a spreadsheet in just 60 seconds using features like Drag and Drop to move information, or Autofill to intelligently project trends.
- **More power than before:** Create multiple "what if" scenarios and use the Scenario Manager to view them all at the same time. Plus, check out the extensive financial, statistical, engineering and scientific tools.
- **Unrivaled Presentation tools:** Now you can have one-step access to 16 professionally designed spreadsheet formats. And you can check the spelling of your spreadsheets, text boxes and graphs with just a single mouse click.

Microsoft Corp. #00227 ✓✓



\$98

Limited Time Offer

Microsoft Excel 4.0 Live Upgrade

If you own an earlier version of Microsoft Excel, it's easy to move up to the unprecedented new power and ease of Microsoft Excel 4.0. Just Mail or fax us page 1 of your Microsoft Excel User's Guide or mail us disk 1 of Microsoft Excel for the Macintosh and you can upgrade to Microsoft Excel version 4.0 today! Then you'll see just how easy power can be.

Microsoft Corp. #04545 ✓✓

BUSINESS ESSENTIALS

☐ = System 7 Compatible ✓ = Money Back Guarantee

Aatrix	
01875 Ultimate Payroll 4.1	198 ☐✓
Acius	
02648 4Th Dimension 2.2	509 ☐✓
Aldus Corporation	
02424 Aldus Persuasion 2.1	324 ☐✓
Beagle Brothers Inc.	
04327 Beagleworks	184 ☐✓
04583 Beagleworks Competitive Upgr.	94 ☐✓
Claris	
04306 Claris Resolve	168 ☐✓
03478 Filemaker Pro	204 ☐✓
04466 Claris Works	196 ☐✓
04703 Macwrite II 1.1	88 ☐✓
Fox Software	
02581 Foxbase+/Mac 2.01	264 ☐✓
Lotus Corp.	
00518 1-2-3 Mac Competitive Upgrade ...	89 ☐✓
00507 1-2-3 Mac Prerelease Price	328 ☐✓
Microsoft Corporation	
00227 Excel 4.0 - Mac	298 ☐✓
01220 Powerpoint 2.01	244 ☐✓
00427 Microsoft Office V2.0	474 ☐✓
00567 Microsoft Works 2.0C	154 ☐✓
04898 Word 5.0 Mac	294 ☐✓
NorthCon Technologies	
00609 Double Helix V3.5	428 ☐✓
Paragon Courseware	
00999 Nisus Compact	92 ☐✓
03479 Nisus 3.06	236 ☐✓
Peachtree Software	
02598 Insight Expert Series	295 ☐✓
02594 At Once!	189 ☐✓
Serius Corporation	
00902 Serius Developer 3.0	408 ✓
00903 Serius Programmer 3.0	279 ✓
Softsync/Bloc	
00344 Accountant Inc. 3.0	329 ☐✓
Symantec	
04464 More 3.1	264 ☐✓
00458 Great Works V.2	198 ☐✓
T Maker	
04465 WriteNow 3.0	158 ☐✓
Teleware Incorporated	
04712 M.Y.O.B. 2.1	138 ☐✓
Timeslips	
01044 Timeslips III v2.1	194 ☐✓

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The Mac Zone proudly presents a new line of high-quality, low-priced hard drives, the DPI series. Our DPI removable was given top honors by BMUG (Berkeley Macintosh User's Group). All DPI drives are built using only the finest components and drive mechanisms. Each drive is carefully tested for over 24 hours to assure your complete satisfaction. You will not find a better drive for the money.



SyQuest 44 Meg Removable Cartridge

\$69

With removable SyQuest cartridges your storage capacity is virtually limitless. Lifetime warranty.

SyQuest #2183

SyQuest 44 Mb 5 Pk.....\$329

SyQuest 44 Mb 10 Pk.....\$649

52 Mb Quantum External

\$359



Our 52Mb Quantum is not only fast and reliable, but attractive and ergonomically pleasing as well. Some of its features include: 3.5" LPS drive type, an average access time of less than 17 milliseconds and a throughput speed of 2 to 4Mb per second. DPI #4880 ✓



GET CONNECTED WITH MACTURBO MODEMS

MacTurbo 24/96 Mini Fax/Modem

\$149

Send faxes without leaving your desk! Our MacTurbo 24/96 Group III Fax Modem gives you both fax and modem for the price of most data-only modems. The 24/96 features 9600bps send rate, full-featured 2400bps data modem, full Hayes compatibility and compact design. Includes all the necessary communications and fax software. MacTurbo #0977 ✓

MacTurbo 2400 Mini Modem

\$89

Our MacTurbo modem has all the features you would expect to find on modems twice the price—and at 6" by 4" it's compact enough to easily tuck away in a briefcase. An eight-light status panel keeps you informed as to the status, nonvolatile memory stores phone numbers even when the modem is turned off. MacTurbo #0408 ✓



MEMORY

00801	2 1MB Simms (2Chip solution)	
	-IliCi, IliSi, Classic	78
00848	8MB Simms	499
00849	16MB Simms	CALL!
03428	2 1-MB Simms (80Ns) Samsung	84
03579	Simms 4X1MB IliFx 80Ns	
	(1X8X70) IliFx/NTX	169
03583	Simms 4X4MB SE/30, IliCx, IliCi,	
	IliSi, Quadra	548
03584	Simms 4X4 for Ili/IliX Only	799
03585	Simms 4X4MB fx	759
03586	Simms 1MB NTX	49
03936	IliSi Simm Module 2MB (Qty 4)	389
03976	Simms LC (Twout 4MB Simms)	317
04608	LC Video Ram-512K	89
04943	256K Vid.Ram-Quadra 2 Chips	59

NewLife Computer Corporation

04914	16MHz no FPU Plus&512E	499
04915	16MHz with FPU Plus & 512E	579
04917	SCSI for 128K, 512K, 512Ke	98
04918	16MHz with FPU (SE)	479
04919	16MHz no FPU (SE)	399
04920	25MHz with FPU (SE)	819
04922	33MHz with FPU (SE)	1789
04923	25MHz with FPU (Plus&512E)	839
04947	16MHz with FPU-Classical	569
04952	16MHz with out FPU-Classical	489

Radius

821	Radius Rocket 25i	1348
1004	Rocket 25i/24K Card Bundle	2498
04207	Radius Rocket	1798

RasterOps

04633	Accelerator 4MB Dram	434
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Sigma Designs

00215	Sigma Double-Up Board	149
04220	Bullet 030 50MHz w/DbI Up	1399

Storm Technology

04336	PicturePress Acl Mac IICard	649
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UPGRADE YOUR MAC... AT A SUPER LOW PRICE!

- Overnight Delivery
- Top Quality SIMMs
- 30-Day Money-Back Guarantee

Macintosh FX Owners

Need more power for graphics? Power up to 20Mb by ordering 4x4Mb FX SIMMs.

#3585 16Mb upgrade kit **\$759**

Quadra Owners

Feel the power! Take your 4Mb Quadra into the next dimension with 36Mb. Order 8Mb SIMMs (must be installed in sets of 4).

#0848 8Mb SIMM call for latest low price.

Or, for the power hungry user, move up to an unbelievable 68 Mb (must be installed in sets of 4).

#0849 16Mb SIMM call for latest low price

SI Owners

Upgrade Your 1Mb IliSi to 9Mb. Order 2Mb (QTY 4) IliSi SIMMs module.

#3936 8Mb upgrade kit **\$389**

LaserWriter NTX Owners

Need more memory for your fonts? Upgrade now by ordering SIMMs 1Mb NTX. (must be sold in sets of 4)

#03586 **\$49** per Mb

- Free Technical Support
- Free Installation Guide with your order

Mac Plus and SE Owners

Upgrade your Mac Plus and SE. Order 1Mb SIMMs (80Ns) Lifetime warranty.

#3428 2Mb upgrade kit **\$42** per Mb (sold in pairs)

LC Owners

• Upgrade Your 2Mb LC to 10Mb. Order two 4Mb SIMMs.

#3976 8Mb upgrade kit **\$317** per pr.

• Welcome to the wonderful world of color. Work with 256 colors. Order LC Video RAM-512K. Upgrade kit.

#4608 **\$89**

Classic Owners

Attention Classic owners! Upgrade from 1Mb to 4Mb. Order Applied Engineering MacRAM Classic 1Mb Upgrade to reach 2Mb.

#3824 Expansion board with 1Mb **\$78**

Then take the next step and go to 4 Mb by ordering 1Mb SIMMs (80ns).

#3428 2Mb upgrade kit **\$42** per Mb (sold in pairs)

SuperOffice.

Business Information And Contact Management
For Macintosh Computers And Networks
• Diary • Contacts • Follow-up • Correspondence • Templates

SuperOffice \$249

Stop rummaging around your desktop for the information you need to get the job done. SuperOffice puts everything you need right at your fingertips. If you're a busy business person with dozens of appointments, customers and commitments, SuperOffice can help you get on top of the information maze and stay there. SuperOffice is a fully integrated, multi- or single-user database system for use on PC/Windows and Apple Macintosh.

The SuperOffice package provides you with an excellent set of organizational tools. You get a diary for tracking your daily activities, a customers file to keep track of key contacts, letter/fax/spreadsheet templates, four types of reports (customers by user-definable categories, customer list, mailing labels and customer follow-up), and much more.

Here are some of the reasons why SuperOffice is one of the most effective business productivity packages available:

ABC Company, Inc. Greg Jenkins

From	To	Customer	Type	Text	Comp.
8:00A	8:25	Brownstone	Meeting	Discuss proposal	
9:00A					
10:00A					
11:00A					
12:00P	1:00		Other	Lunch with Maroon	
1:00P	2:00	BYTE	Demo	Demo SuperOffice	
2:00P					
3:00P					
4:00P					
5:00P					
6:00P	8:00		Other	Tennis at 120 Tennis	
9:00P	10:00		Meeting	Board meeting/Tennis club	

Notes: Do not forget the airplane tickets!

TO-DO LIST

Customer	Type	Text	Complete by
BYTE	Outg. call	Call Susan to verify quotation	1/17/92
Brownstone Corporat	Outg. letter	Send revised proposal to John	2/5/92
Johnston, Inc.	Demo	Schedule product demo	2/15/92

ABC Company, Inc. Greg Jenkins

Brownstone Corporation

Address 1: One Hill Street
Address 2: P.O. Box 97
City: Gagnemville
State/Zip: MA 01678
Country: (415) 670-7690
Telephone: (415) 670-9967
Telefax: (415) 670-6789
Our contact: G1. Greg Jenkins

Letter: Manual Letter, Presentation, Followups Letter, FR Letter

Fax: Standard Fax, Checklist Fax, Order Confirmation, Purchase Order

Mr. Johnston
Mr. Wall
Mr. Books

Write, Delete, Previous, Next, New, Find, Follow-up, Diary

CUSTOMER

Brownstone Corporation

Address 1: One Hill Street
Address 2: P.O. Box 97
City: Gagnemville
State/Zip: MA 01678
Country: (415) 670-7690
Telephone: (415) 670-9967
Telefax: (415) 670-6789
Our contact: G1. Greg Jenkins

Code: BROWNSTONE
Number: 89005
Business: Banking
Category: Customer
Total sales: \$6,900.00
Employees: 13
Last change: G1 1/28/92

Shop, Interests, Edit

CONTACTS

Mr.	Last name	First name	Title	Comments
Mr.	Johnston	Mark	President	Previously with T. Jones, Inc.
Mr.	Wall	John	Vice President	
Mr.	Books	John	Sales Manager	

Write, Delete, Previous, Next, New, Find, Follow-up, Diary

SuperOffice Competitive Upgrade #01001.....\$69
SuperOffice 5 User #00957.....\$954
SuperOffice 10 User #00958.....\$1489

► **It's easy to use.** SuperOffice uses only a few screens, and it prompts you for all entries. You can choose to run the program with the intuitive ease of pull-down menus or the speed and simplicity of command "speed" keys. SuperOffice windows resemble familiar desk items, e.g., Post-It notes, calendar pages, index cards and paper clips.

► **It's multi-user compatible.** With the multi-user version you can share access to the same information. On a common network, Macintosh and MS-DOS computers can access the same file.

► **It's powerful.** Powerful and comprehensive, SuperOffice business information and contract management software instantly provides you with the information you need to succeed.

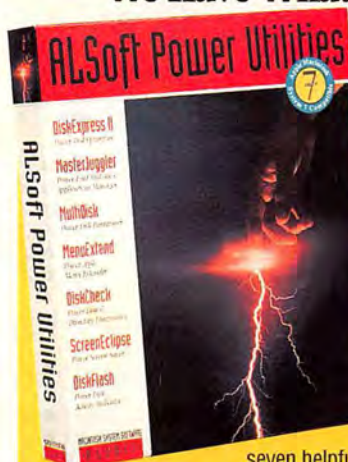
► **It's flexible.** You get user-definable system setup, user-definable spreadsheet and word processing templates, user-definable contact classification fields and more. Going on a business trip? Export the data you need from SuperOffice and update the master data file with the new information when you get back.

► **It's compatible with what you're using now.** You can access most popular business software from within SuperOffice. Microsoft Word, Microsoft Excel, PowerPoint, MacWrite, Aldus PageMaker, WordPerfect, Lotus 1-2-3, Ami Pro and others are but a few of the supported applications.

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AlSoft Power Utilities \$62

Enhance the performance of your Mac with AlSoft Power Utilities. The package includes

seven helpful units: a disk space manager, a disk partitioner, a System 7 menu enhancer, a disk and directory diagnostic program, a screen saver, a disk activity indicator, a font suitcase and application manager. AlSoft, Inc. #00628 ✓✓

NOLO's Living Trust

\$43

Make sure that your wishes are followed. Write your own living trust! Easy-to-use question and answer format walks you through the process step-by-step. Use it for individually or jointly-owned property. Can be rewritten or modified any time you wish. NOLO Press #04720 ✓✓



NOLO'S LIVING TRUST

- Avoid probate simply & safely
- Save on lawyer's fees
- Leave property to family, friends & charities

Macintosh
"In the vanguard of the do-it-yourself law movement."
The New York Times

PUBLISHING WITH YOUR POWERBOOK



BeagleWorks \$184

BeagleWorks combines a full-function word processor, spreadsheet, charting program, database, painting program, drawing program and communications module into one package. This truly integrated program lets you combine data from all other modules and makes changes (edit in context), all without leaving your document! Beagle Bros. #04327 ✓✓



\$74

Universal Notebook Case

The Targus Universal Notebook Case is made of a new material that is both stylish and durable and features two padded compartments. The computer compartment has

an extra layer of foam padding and two Velcro straps to secure the computer. The other has Velcro-adjustable dividers for power supply. Targus #07454 ✓✓

ADDmotion

\$248

PRomotion w/PrimeTime

With PROMotion's 24-bit-color paint, animation and sound editor you can make QuickTime Movies, storyboards and presentations, in a fraction of the time—even if you can't draw. It's the perfect choice for business and artistic professionals. Includes extensive System 7 support and Sony Print to Video. Motion Works #01039 ✓✓

\$94

ADDmotion II



This seamless multi-media extension for HyperCard brings 24-bit-color paint, animation and sound editing to HyperCard 2.1. ADDmotion II's ease of use and price make animation and multimedia available to Mac enthusiasts and HyperCard users. Exports QuickTime Movies. Includes HyperCard 2.1. Motion Works #00194 ✓✓

\$64

PrimeTime

PrimeTime CD is a collection of media & clips for use with PROMotion and ADDmotion II. The CD includes a Media Browser containing over 100 actors (in both b&w and color), background props, and over 120 sound clips covering business, education and entertainment. Motion Works #1038 ✓✓



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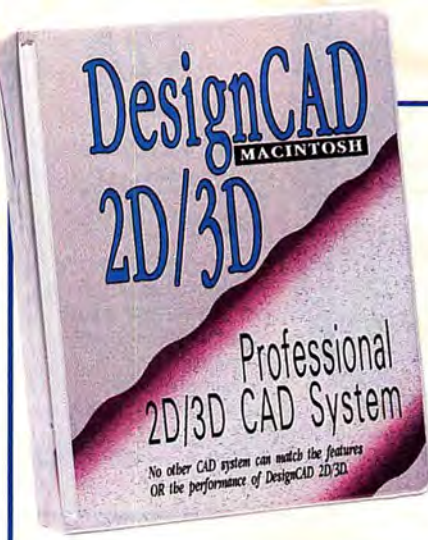
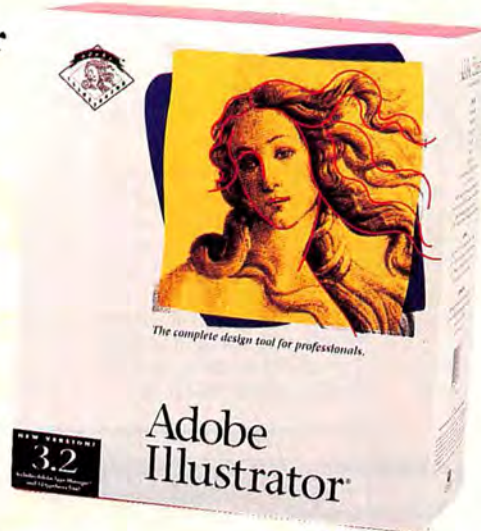
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GRAPHICS & DESIGN

Adobe Illustrator 3.2

\$364

This easy-to-use software program offers powerful illustration, page design and color separation capabilities. Version 3.2 is "System 7 Savvy," supports Publish and Subscribe, is 32-bit clean, offers TrueType support and has added new process color palettes. Adobe Systems #04983 ✓



DesignCAD 2D/3D V3.0

\$159

DesignCAD provides the speed and accuracy necessary to manipulate complex two- and three-dimensional designs. It's designed for engineering, animation, desktop publishing and multimedia. Provides file support for DXF, IGES, XYZ, PICT, RIB. DesignCAD, Inc. #04180 ✓



Adobe Systems

04983	Adobe Illustrator 3.2 w/ ATM	364	✓
04042	PhotoShop 2.0	548	✓
03971	Streamline 2.0	121	✓

Aldus Corp.

04121	Aldus Gallery Effects	128	✓
04573	Aldus Pagemaker V4.2	494	✓
04799	Personal Press	98	✓
00333	Aldus Freehand 3.1	394	✓
04190	Aldus Superpaint 3.0	132	✓
01379	Super 3D 2.5 (Color)	324	✓

Caere Corporation

04173	Omnipage 3.0	498	✓
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Calera

04412	Wordscan + for Mac	714	✓
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Claris

03693	Claris Cad	614	✓
02201	Macpaint 2.0	84	✓
04073	Macdraw Pro	274	✓

Computer Associates

04414	Cricket Draw III	199	✓
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Dest

03930	Dest Recognize! OCR	515	✓
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Delta Tao Software

04082	Monet	249	✓
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Deneba

00803	Canvas 3.0	248	✓
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Electronic Arts

03594	Studio 32	448	✓
03827	Studio 8 2.0	188	✓

Fractal Design

00665	Fractal Design Painter V 1.2	248	✓
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Frame Technology

03582	FrameMaker 3.0	594	✓
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Graphsoft

04830	Blueprint 2.1	218	✓
03540	MiniCad 3.1+	594	✓

Light Source

00657	Ofoto	278	✓
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MultiAd Services, Inc.

00054	MultiAd Creator v3.0	498	✓
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Postcraft International

04049	Effects Specialist	94	✓
	Layouts - Stationary Pack A or B	34	✓

Softsync, Inc.

00954	Expert Color Paint	28	✓
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Supernac Technology

01576	Pixelpaint 2.1	148	✓
02665	Pixelpaint Pro 2.0	489	✓

TimeWorks

04769	Publish It Easy 2.1	138	✓
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Xerox Imaging System

04994	Accutext 3.0	678	✓
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Design Your Own Home:

Architecture #03609

Interiors #03611

Landscape #03610

**\$62
each**

Whether you are a professional or a do-it-yourselfer, Design Your Own Home can make your planning time more productive. Each program includes sample plans and a try-out section to get you started, plus command cards to keep by your side as you work. There are 3 programs: Architecture (floor plans to structural details), Interiors (furnishings to color schemes), and Landscapes (trees to fences). Includes several sample plans. Abracadata ✓

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Fonts & Clip Art

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3G Graphics

00421	Images with Impact - People 1	94	✓
02085	Images with Impact - Business 1	63	✓
03192	Im.w/Imp.Accents&Borders 1	63	✓
01617	Im.w/Imp.Graphics & Symbols	49	✓

Adobe Systems

Adobe Fonts: Full Line	Call	✓
03092	Adobe Type Align	61	✓
03491	Adobe Type Set 3	124	✓
03950	Adobe Type On Call	58	✓
	Adobe Type Set 1 or 2	61	✓
02870	Adobe Plus Pack for Type Mgr.	108	✓
03280	Adobe Type Reunion	40	✓
03497	Adobe Type Manager 2.0	58	✓

Altsys

04195	Altsys EPS Exchange	88	✓
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Ares Software Corporation

00078	Fontmonger	61	✓
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Casady And Greene

00315	Fluent Laser Font 4.0 w/TrueType	98	✓
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Castcraft

00345	Optifont	599	✓
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D-Pix Visual Velocity

04823	Folio I	349	✓
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Dream Maker Software

04775	MacGallery Hypercard/Mac Paint	26	✓
	Cliptures Vol 1, 2, 3, or 4	67	✓

Fontbank Inc.

04986	Fontbank Type Companion	94	✓
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Micromap Software

04357	Map Art - PICT or EPS	89	✓
04355	Map Art - Macpaint	39	✓

Monotype Typography

05001	Imprints for TrueType - Albertus	22	✓
	DTP Solutions	119	✓

Online Arts

00178	Business Images Clip Art	79	✓
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T Maker

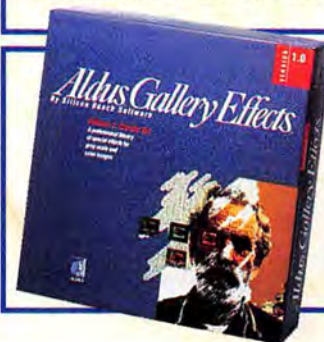
	Click Art Series	38	✓
	Clickart EPS Series	82	✓

Uncle Mitty's Clip Art

04273	Uncle Mitty's Clipart	34	✓
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Aldus SuperPaint 3.0 \$132

The new Aldus SuperPaint 3.0 is the complete painting, drawing & image enhancement package for the Mac. It includes 1- through 24-bit color, textures, gradients, masking, color balancing, AutoTrace, Beziers and EPS graphics support. Aldus #04190 ✓



Gallery Effects \$128

Gallery Effects automatically turns grayscale and color bitmapped images into spectacular, breathtaking art. 16 master effects including Graphic Pen, Watercolor, Charcoal and Emboss, with thousands of variations from each. Works directly within programs like SuperPaint, Photoshop, and Painter, or as an application DA. Aldus #04121 ✓

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Scanman 32 with Catchword Pro

\$378

Some of the ScanMan Model 32's many features are: 32 gray scale and advanced halftone for superior image quality; true 400dpi scanning resolution; half-page scanning width; advanced output controls; tear-off tool palette; works with all applications, including HyperCard. With CatchWord OCR software you'll capture text with high-level accuracy. Logitech #00670 ✓



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- Credit card is not charged until your order is shipped. If we must ship a partial order, freight is not charged on back order (USA only).
- Most personal and company checks received by mail will clear immediately. In order to be processed all checks or purchase orders must have a phone number and contact person listed.
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- Educational, government and corporate purchase orders are accepted.
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- Prices and product availability subject to change without notice. All specials and promotions are limited to available stock. Please call for current prices.
- All products covered by 120 day limited warranty.
- Shipping is \$3 per order for delivery in the USA. We ship via Airborne Express Overnight service. (Some rural areas require an extra day for delivery).
- Orders placed 9pm to 7am ET are shipped free in USA via Airborne Express, except monitors.
- Orders placed by 9pm ET (6pm PT) weekdays for "in stock" items will ship that day for overnight delivery (barring system failure, etc.).
- APO/FPO box orders are shipped first class U.S. Mail. Shipments to P.O. Boxes are via UPS.
- We will not be held responsible for typographical errors.
- Defective software will be replaced immediately. Hardware will be repaired or replaced at our discretion.
- A Return Authorization Number must be obtained prior to returning any item. Please call Customer Service Hotline, 1-800-248-9948, weekdays from 6am to 6pm PT, 9am to 9pm ET.

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Redmond, WA 98052-9904
International: 206-883-3088 • FAX: 206-881-3421



Expressionist V.2.07 \$78

$$\delta I_M = \frac{1}{2} \sum_n m_n \int_{-\infty}^{\infty} dp \left[-g_{UV}(\mathbf{x}_U(p)) \frac{d\mathbf{x}_U(p)}{dp} \frac{d\mathbf{x}_V(p)}{dp} \right]^{-1/2}$$

Expressionist enables you to quickly & easily insert typeset quality equations into technical documents. Buy now and receive, when available, the new System 7 savvy Expressionist 3.0 FREE from Prescience, a \$49.95 upgrade value. Prescience #01382 ✓

Offer expires 6/15/92

Cliptures Vol. 4 World Flags \$67

World Flags Contains exquisitely detailed national and civil flag illustrations from all the independent and dependent countries of the world, plus various international, organization and code flags. Dream Maker Software #04282 ✓

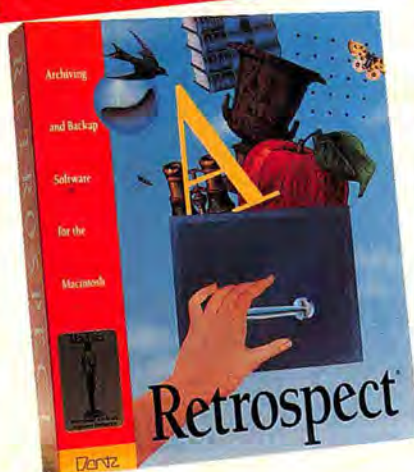


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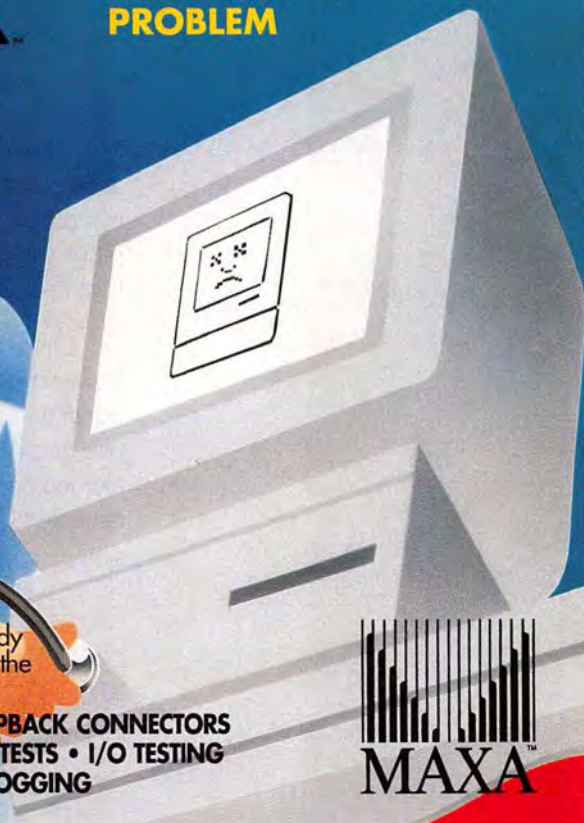
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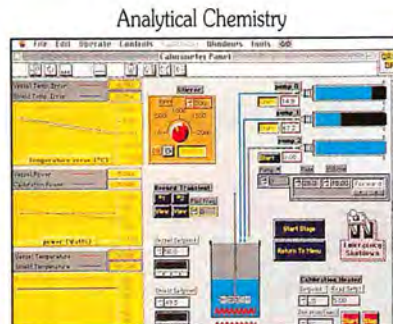
35 REM *****
36 OPEN "dev1" FOR OUTPUT AS #1
37 OPEN "dev2" FOR INPUT AS #2
38 REM *****
39 PRINT #1,"clear 1"
40 PRINT #1,"local lockout"
41 PRINT #2,"output 1:off; gain: off;"
42 REM *****
43 PRINT #1,"trigger 1"
44 PRINT #1,"enter 1"
45 INPUT #2,AS:AS
46 REM *****
47 PRINT #1,"output 1:dat end asc:outlet"
48 PRINT #2,"enter 1"
49 INPUT #2,AS
50 REM *****
51 PRINT #1,"stop 1"
52 INPUT #2,AS:

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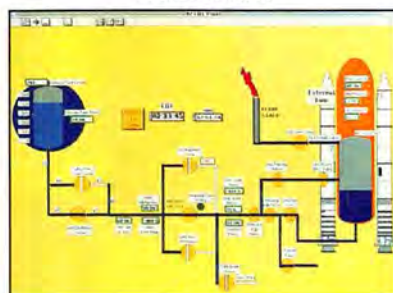
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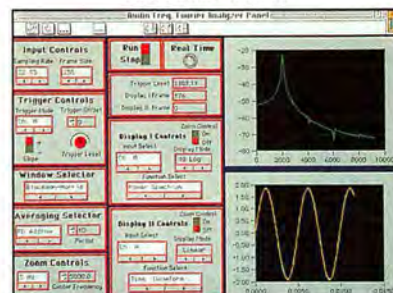
Automated Test



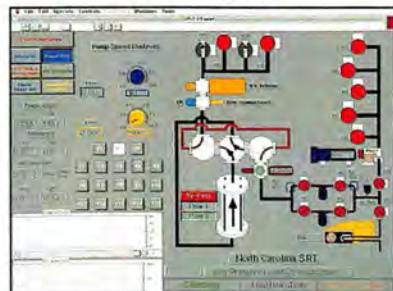
Analytical Chemistry



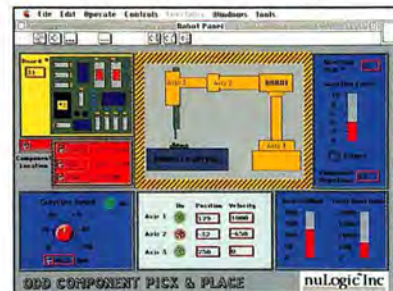
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Eight Immodest Proposals



Apple says it's committed to the Mac. Here are eight not-so-easy ways to prove it to the rest of us.

OK, Apple, so you're modularizing the system software. We will soon be able to buy modules for QuickTime, OCE, scripting, a new imaging model, speech recognition, and pen input and plug them in to a new kernelized System 7.

Fine. Now, while you're at it, how about modularizing the user interface? Give us a choice of UIs for those times when icons and windows and this so-called desktop metaphor don't cut the mustard.

I know, come the jihad, we heretics will get ours — there is no god but desktop and substantial is his profit and consistency is paradise enough. But there's consistency and there's consistency:

"Consistent interpretation of user behavior by the system is more important than consistent system objects or behaviors," according to your own human-interface evangelist, Bruce Tognazzini. In other words, if you display icons and windows, you'd better make darn sure they act the way users expect icons and windows to act, but this doesn't mean that you have to display icons and windows. In the same context, Tog went on to say, "If you must make a change, make it a large and obvious one."

Here are several large and obvious changes:

1. Give us an appropriate interface for that palmtop personal digital assistant (PDA) you're going to be selling next year. I'll give you credit for realizing that a palmtop desktop would be a painfully stretched metaphor, but is a palmtop card stack really any better? Does it make good use of the limited display space? Does it exploit any of the unique features of the pen, which will be these machines' only input device? Just because the pen replaces the keyboard and the mouse, that doesn't mean that you should map pen moves onto keyboard-and-mouse-interface software. On reflection, don't you think that this would be kind of lame? Better forget that first HyperCard-esque PDA and release the serious PDA with the genuine pen user interface (PUI) — which, I'm sure, will be at least as appropriate as GO Corp.'s notebook user interface (NUI).

The Talk-Back Mac

2. The proliferation of new UI acronyms such as PUI and NUI is inevitable, because a graphical user interface (GUI) has limitations. In particular, a GUI doesn't make a whole lot of sense for a medium that is inherently

nonvisual. Voice input and output cry out for a new user interface. This talk-to-your-Mac and talk-back-Mac technology is going to be hard enough to sell without the handicap of an inappropriate user interface.

Besides, the auditory channel has some tantalizing characteristics that the visual channel doesn't. It's omnidirectional, so you don't have to be attending to the messenger to get the message. It's linear but rich, like a lot of life, and we can often handle more than one linear channel simultaneously. Then there's the interesting fact that we can hear our own names under conditions in which other signals would be inaudible or at least indistinguishable. That says something, I'm not sure what, about the interaction of channel capacity and content.

These features have intriguing implications for user-interface design, and not just for the part of the interface that processes the sound data but for the whole interface and, in fact, for the whole work environment. If the system support, user interface, and applications for speech I/O all work right, we should see users spending less time looking at screens. One small question among the many that this single observation raises is this: How do you get someone's attention? Will alerts for E-mail messages and to-do-list items, which now typically either beep or flash something in the menu bar, move exclusively to the auditory medium? If so, how does one auditory signal override another? By overlaying signals, as in the real world, or by grabbing the channel? Clearly, there are some gnarly UI issues here, and they have nothing to do with icons and windows.

And if enough kinds of information move into the auditory channel, perhaps the visual environment can be simplified. Maybe we don't need such a complicated visual interface if its main purpose is to display truly graphical information such as pictures and charts.

The Mouseless Mac

3. You've made your point with the mouse. It's almost always better to use a mouse and keyboard than just a keyboard. Tog proclaims it, your research proves it, I believe it. But if it's not *always* better, then there are times when it's worse. How come we can't have a keyboard-only interface option for those times? And I don't mean keyboard command equivalents; I mean a new keyboard-only interface

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MICHAEL SWAINE

designed by those brilliant Apple interface designers. OK, maybe you'll need some outside help. Talk to Jef Raskin; you remember Jef, the guy who invented the Mac only to see it usurped by Steve Jobs and turned into a toaster. Jef has some ideas about keyboard-interface design, and he's not shy about sharing them.

Of course, one of Jef's ideas that you do seem to have a grip on is that if you have to offer users a choice, it's because you don't know how to solve the problem yourself. You might back off from that one a little: A lot of us out here are pro-choice. We think that the best of all possible Apples would provide a choice of methods for users who know how to use more than one and how to choose among them. There are such users. Empower us.

4. There are also users, as you know, who can't use a mouse and who can't use the keyboard as intended. You created sticky keys for them with your Easy Access program, giving them "special" (although not exactly "easy") access to the Mac. Kudos to you, Apple; it's more than anyone else was doing, but do you really think it's enough? Why not a new interface module or set of modules for people variously handicapped? I once designed a prototype user interface that used only a two-button device for input (not a two-button mouse, a two-button device). I called it the Two-Bit Interface, because that was the input-channel bandwidth. Fairly severely handicapped people could use that interface. It was a pretty lousy interface, but it wasn't a crutch, which sticky keys is. I know you can do much better.

Brain-Wave Sweatbands

5. Of course we need "virtuality" interfaces. We've got the hardware, in more or less crude form, at more or less daunting prices: VPL's DataGloves, those helmet-and-goggle contraptions that display a 3-D world responsive to the movements of your head, and a little farther out on the curve, brain-wave reading sweatbands. You've noticed, I'm sure, that these devices have user interfaces and that Apple didn't design them. Are you really content to let VPL define the user interface for virtual reality?

I say "of course" we need virtuality interfaces, because user-interface pioneer Ivan Sutherland said it in 1965: "The ultimate display would, of course, be a room within which the computer could control the existence of matter. A chair

Give them a glove and objects to pick up and use in a world laid out for them to explore; let your first virtuality-interface product be for kids.

displayed in such a room would be good enough to sit in." Of course. If it was obvious in 1965, it must be inevitable today. Your ATG (Advanced Technology Group) engineers *are* working on the Lawnmower Man interface, aren't they?

6. Kids need an interface of their own, and it's got to be something truly innovative — not just a watered-down desktop with fewer folders and icons. The Mac UI is more abstract for little kids than it is for adults in an office who regularly put documents into file folders. A kid interface should be less abstract for a kid than it is for an adult. Jaron Lanier, the inventor of the DataGlove, showed me a good interface for kids, running on an Atari, eight years ago. Give them a glove, give them objects to pick up and manipulate in a world laid out for them to explore, let your first virtuality-interface product be for kids. But you know all this; you've got interface guru and education enthusiast Alan Kay working for you. Are you listening to him?

7. That's all sky of a rather deep blue. Back on the ground, a plain old mouse, keyboard, and monitor comprise a perfectly good set of user-interface hardware for most purposes. But icons and windows are not the last word in interface design for even this standard hardware configuration. Another prophet of the one true faith, Bill Atkinson, knew that the Macintosh GUI wasn't sacrosanct when he designed the HyperCard GUI to sit on top of it. That sort of thing can and should be done again.

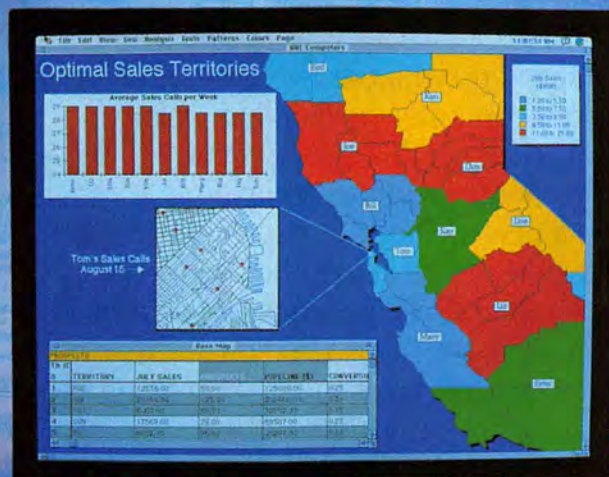
8. And now that you're building machines to be used as network servers, how about a server user interface? Give us a 68040 box with just the required logic and a custom ROM, switches instead of a keyboard, lights instead of a monitor. Make us a front-panel Mac, and make it dirt cheap.

Do all that, and I promise not to laugh when you launch the "Macintosh Forever" campaign. ☺

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NEW ON THE MENU

Think pink Apple and IBM have finally launched Taligent, their operating-system joint venture, and IBM types are few and far between. Other than the CEO and controller, all the Taligent execs are Apple folk. And who are the engineers? The Pink team, natch. IBM will toss in a few people from Metaphor and Patriot Partners, but that's it. So far, Taligent's biggest news is that the Pink guys now have new business cards.

By Russell Ito

Trimming the green: Now that most of us either (a) have recovered from the recession and entered a "normal" but desiccated economy or (b) find ourselves still mired in a lingering economic malaise, market share has become the primary concern. And how do you gain market share? Ask any rug merchant: "Slash prices." We told you about Apple's price cuts last month; at just about the same time, several other companies joined the party.



⌘ **SuperMac Technology** ([408] 245-2202) took the biggest step, making across-the-board price cuts in its product line — 17 products in all. The cuts ranged from 17 percent (\$751) on the SuperMatch 21 Two-Page Color Display to 40 percent (\$1,000) on the Spectrum/24 PDQ Plus video card. ⌘ Meanwhile, **QMS** ([800] 631-2692 or [205] 639-3322) trimmed its printer prices 10 to 20 percent. The QMS-PS 410 is now \$400 cheaper



(\$1,995 list), the QMS-PS 2210 is \$1,000 cheaper (\$9,995 list), and the QMS-PS 2220 is \$2,500 cheaper (\$9,995 list). ⌘ And just to prove that software publishers can play the price-slashing game too, **Claris** ([408] 727-8227) knocked nearly 50 percent off the price of MacWrite II, taking it from a

list of \$249 down to just \$129. And through the end of June, Claris is also slicing \$150 off the price of Resolve, bringing it down to \$249. ⌘ **This industry** will never get to the point of holding "going out of business" sales for months — or even years — on end, but if the economy stays stagnant, don't be surprised to see more vendors vying for your dollar with even-more-attractive price cuts.

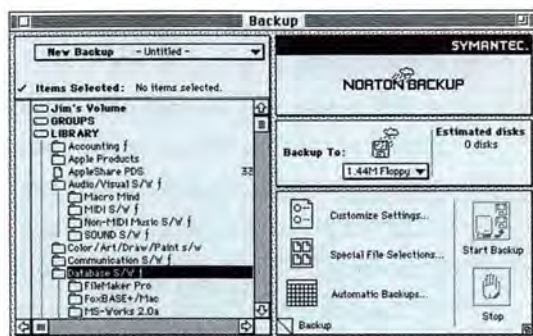
Up to Date . . .

SuperLaserSpool has finally gotten its System 7 update (DeskWriter owners, rejoice!). Version 3.0 offers support for printing to multiple printers; color-printer support; and improved memory management, so you regain control of your Mac faster. (800) 873-4384 or (504) 291-7221. \$149.95. ⌘ **The Radius Rocket 33** is the latest member of the Rocket 68040-accelerator family, assuming the mantle of top of the line. It's a 33-megahertz unit that promises a 32-percent performance improvement over the Quadras. (408) 434-1010. \$2,499. ⌘ **Ray Dream Designer** has undergone a major revision. Version 2.0 offers a "virtual trackball" for easier viewing of on-screen objects; DXF support; support for Photoshop's alpha channel; and DreamNet, a distributed-rendering capability. (415) 960-0768. \$895. ⌘

Norton Utilities and SUM II Merge

Now that IBM and Apple have officially started working together, it's time that another great merger became final: the combination of Norton Utilities and SUM II. The new package, to be called Norton Utilities for the Macintosh 2.0, adds some of SUM's features to Norton Utilities as well as several enhancements to Norton Utilities' feature set.

The new data-protection/security options include a backup utility, a permanent data eraser, a soft-partitioning utility, and an encryption option for files or folders that supports both the DES standard and a proprietary algorithm. Norton Backup is an entirely new utility, not the subset of Redux that Symantec used to ship in SUM. It can create unattended



Norton Utilities for the Macintosh 2.0 includes features from SUM II. Among the additions is a completely new backup utility that can perform backups in the background to any desktop-mountable device.

backups to any desktop-mountable volume, such as a floppy disk, a hard drive, or a network volume, but it can't back up to tape. Wipe Info overwrites deleted data so it can't be recovered, and Partition lets you create soft partitions with an encryption option.

Floppier, the solitary productivity

addition, is a floppy-copy utility that lets you duplicate and initialize multiple copies of a floppy disk. You can also create and save image files.

In addition to the SUM functions, Symantec says it's added 30 other enhancements to Norton Utilities itself, including an improved Norton Disk Doctor that can catch and fix more problems than the previous version can.

Symantec, 10201 Torre Avenue, Cupertino, CA 95014; (800) 441-7234 or (408) 252-3570. \$149.

IBM's First Mac Printers



Lexmark's IBM LaserPrinter 6A and 10A (shown here) are 6-ppm and 10-ppm PostScript printers that offer either 300 dpi with resolution enhancement (the 6A) or true 600-dpi resolution (the 10A).

If the U.S. government can pay Russian nuclear physicists to stay on the job in Russia, it shouldn't seem too strange to find that you can now connect an IBM printer to your Mac. That's right. Lexmark, IBM's former printer division, has just introduced its first Mac-compatible PostScript Level 1 printers — the IBM LaserPrinters 6A and 10A (Big Blue has never been known for catchy names).

The 6A is a 6-ppm 300-dpi model with IBM's proprietary dynamic-dot-sizing resolution-enhancement capability, called Print Quality Enhancement Technology (PQET, another

catchy name). The 6A comes standard with 2 megabytes of RAM, expandable to a maximum of 9 megabytes. If you add 2 megabytes to the base configuration, the 6A can be configured as a 600-x-600-dpi printer. The heart of the 6A is a 10-megahertz 68000 processor.

The 10A is a 10-ppm 600-x-600-dpi unit with 5 megabytes of RAM standard, which also can be expanded to a maximum of 9 megabytes. Intended specifically as a network printer, the 10A uses a 16.7-megahertz 68020 processor and comes with a 250-sheet output bin.

The 6A and the 10A each come with a LocalTalk port, but Lexmark doesn't offer an Ethernet solution. In addition to PostScript, the printers offer PCL 4 and HP-GL emulations on-board and PCL 5 emulation as an option. The printers support emulation switching, provided you install a supplemental utility that Lexmark sells for \$29. Lexmark's offerings come with 39 installed Adobe Type 1 fonts and a standard 200-sheet input tray.

Lexmark International, Inc., 740 New Circle Road N.W., Lexington, KY 40511; (800) 426-2468. LaserPrinter 6A, \$2,695; LaserPrinter 10A, \$3,995.

OCR/Fax First

Fax machines are great, but fax documents are another matter. The problem is that fax files aren't editable, and in order to turn them into a text file, you have to convert them by using an OCR application — most of which can't read fax formats, because OCR applications are tuned for 300-dpi resolution and faxes are transmitted at a maximum of 200 dpi. To solve this problem, PSI Integration has introduced the first OCR/fax solution for the Mac: FaxOCR.

FaxOCR is a software add-on to PSI's existing fax software, so you have to have a PSI product to use FaxOCR. Using a recognition engine from one of the leading OCR developers, the fax-conversion/recognition process requires only a single menu command: You just select a received fax file and choose the OCR command. FaxOCR then automatically converts the fax file into an OCR-compatible file format and performs the recognition. As with any OCR product, though, FaxOCR does take some horsepower. Any 68030-based Mac and 4 megabytes of RAM are the minimum requirements.

PSI Integration, Inc., 851 E. Hamilton Avenue, Suite 200, Campbell, CA 95008; (800) 622-1722 or (408) 559-8544. \$199.


GCC's Wide Bubblejet Printer

If every print job could fit on letter-sized paper, a basic laser printer would be all anyone would need. Unfortunately, documents don't all come in the same size — just ask anyone who's spent time taping together a spreadsheet that's been fragmented over several pages. Large-format laser printers are available, but they're often expensive, so GCC Technologies has introduced a budget solution: the WideWriter 360.

The WideWriter 360 uses a 360-dpi Canon bubblejet (inkjet) engine to print on paper as wide as 17 inches. It comes with an AppleTalk interface for networking and support for background printing, ATM, and TrueType. The printer comes with an automatic sheet feeder (ASF) and an incorporated tractor feeder. An optional second ASF can be added. Using GCC's software, you can switch between sheet feeders.

For better print quality, the WideWriter uses built-in intelligence to analyze a job. For example, it can print both unidirectionally and bidirectionally in the same job to improve performance while reducing jaggies. It can also skip vertical and horizontal white space in a job, so the print head doesn't have to travel all the way across the sheet with every pass.

The WideWriter 360 is intended for CAD and mechanical drawings that would ordinarily be done on a similarly sized plotter. It should also be right at home in business environments, printing organizational charts, spreadsheets, and Gantt charts.

GCC Technologies, 580 Winter Street, Waltham, MA 02154; (800) 422-7777 or (617) 890-0880. \$1,699. 



GCC Technologies' WideWriter 360 can handle paper as wide as 17 inches. This 360-dpi bubblejet printer is an inexpensive wide-output solution.

NewsLine

Special Report

Apple's System-Software Plans

NAPA, CA — At a meeting for the press and analysts, Apple recently sketched out its system-software plans for the next two years. Tomorrowland's Mac OS will offer built-in mail and messaging, a new display-and-print architecture, interapplication scripting, enhanced QuickTime capabilities, pen and speech input, and support for multiple languages — and it will run on RISC-based Macs.

Apple will release future system-software features as stand-alone extensions, as it did with QuickTime. Initially, most of these will be sold as separate products. Every year or so, Apple will integrate them into a new "reference" release, which will then ship in the box with subsequent Macs. Those are the basics. Following are some specifics. By offering these features at the system level, Apple will reduce the development effort required to incorporate them into third-party applications.

- **Mail and messaging.** Apple's Open Collaboration Environment (OCE) will enable System 7 users to send documents as messages directly to other OCE-capable users — from within virtually any application. OCE users will have two new icons on their desktop: a mailbox, for incoming messages, and a directory, for addressing messages to other users. Third-party gateways will enable Mac users to exchange messages with users of other mail systems, such as Novell's NetWare MHS (message-handling service).

OCE will also provide document-security features, including public-key digital signatures (which ensure that documents aren't accidentally — or maliciously — altered) and document encryption. (For more-detailed information on OCE, see "On Beyond E-Mail," March 1992, page 191.)

- **New imaging and printing architecture.** Although Apple's new architecture will be neither the Mac's current QuickDraw nor Adobe's PostScript, Apple promises that it will fully support both. It will provide such capabilities as device-independent color, color calibration, and support for prepress color separation and will offer scaling, skewing, rotation, and clipping of any graphic or text object.

Typography will improve. TrueType and Type 1 fonts will be fully integrated into the new architecture. A new Line Layout Manager will support improved kerning and tracking, automatic ligatures, font families

with multiple weights, algorithmic fonts (the TrueType equivalent of Adobe's Multiple Master fonts), and languages that read from right to left. Start saving your pennies, though: To use these new font features, you'll have to upgrade your entire font library, whether TrueType or Type 1.

The Line Layout Manager will make the system "world ready." Users will be able to mix words from different languages, including left-to-right- and right-to-left-reading languages, within the same text block. They will also be able to load systems for multiple languages simultaneously and to switch the system from one language to another on the fly.

Apple will rewrite its Print Manager to better support three types of print devices: raster devices (such as the ImageWriter and the StyleWriter), PostScript devices, and plotters. Look for drag-and-drop printing, easier page setup, a reworked (or possibly eliminated) Chooser, and perhaps print-preview capabilities.

- **Scripting.** AppleScript will provide a means for users to write scripts to automate tasks that today must be done manually and to customize interaction among applications using System 7's IAC (inter-application communication). You will, for example, be able to write a script that instructs a telecommunications program to call an on-line service every hour to retrieve stock quotes, send that data to a spreadsheet that keeps track of stock-price trends, and instruct a forms program to fax a sell order to your broker if a stock falls below a predetermined price.

- **PowerPC.** Tomorrow's Mac may still run under the Mac OS, but odds are that it won't be based on a 680x0 chip. It will be a PowerPC RISC machine. (PowerPC is the name of a line of RISC chips being developed jointly by Apple, IBM, and Motorola.) You can expect the entire Mac line to go RISC some time before the millennium. But don't worry. Apple assures us that current 680x0-based Mac applications will run without a hitch on PowerPC-based Macs. (Did I mention some lovely wetlands for sale in Florida?)

Ready to rush out to your dealer? Sorry. At press time, Apple had announced only technologies, not products. My advice: Don't look for most of this stuff before the end of 1992, but 1993 should be a very exciting year.

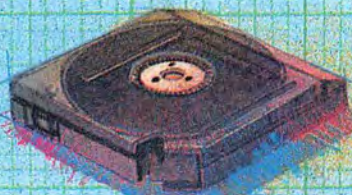
— Henry Bortman

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GRAPHICS & DESIGN

DeltaGraph Professional

DeltaPoint's powerhouse of a business charting package doubles as a presentation tool.

DeltaGraph Professional is a substantial upgrade to DeltaPoint's multitalented business charting package, DeltaGraph. With striking new 3-D-chart types, a slide-show-presentation module that includes QuickTime support, custom colors, gradient fills, and chart-template libraries, DeltaGraph Pro is versatile enough to serve as both a charting and a presentation tool.

Outcharting Excel

If you're an Excel user whose charting needs have gone unmet — even with the enhanced charting features in Excel 3.0 — DeltaGraph Pro will be an excellent addition to your software library. Excel can't compete with DeltaGraph Pro's presentation-quality output, bullet-chart and slide-show capabilities, variety of sophisticated chart types, and flexible formatting controls. Moreover, Excel's palette of 16 colors seems drab compared with DeltaGraph Pro's 90-color palette. The spreadsheet program also lacks

DeltaGraph Pro's variety of drawing tools for customizing charts and support for backgrounds, EPS graphics, and gradient fills.

DeltaGraph Pro uses two main windows — Notebook and Chart — to work its charting magic. You enter data into the Notebook window, using one of two "page" formats — data or text. Data pages are organized in a row-and-column format, and you can edit and manipulate cells much as you do in a spreadsheet program. Text pages appear in indented-outline form and are used to create bullet charts for presentations.

Icons in the upper left corner of the Notebook window let you create new pages and flip through existing ones, display the dialog box for chart selection, and update existing charts when you modify the associated data.

In the Chart window, you can opt to create a new chart document and window each time you create a chart or you can add the chart to an existing document. A

single document can contain as many as 100 chart windows. DeltaGraph Pro saves charts with their associated notebook pages and data.

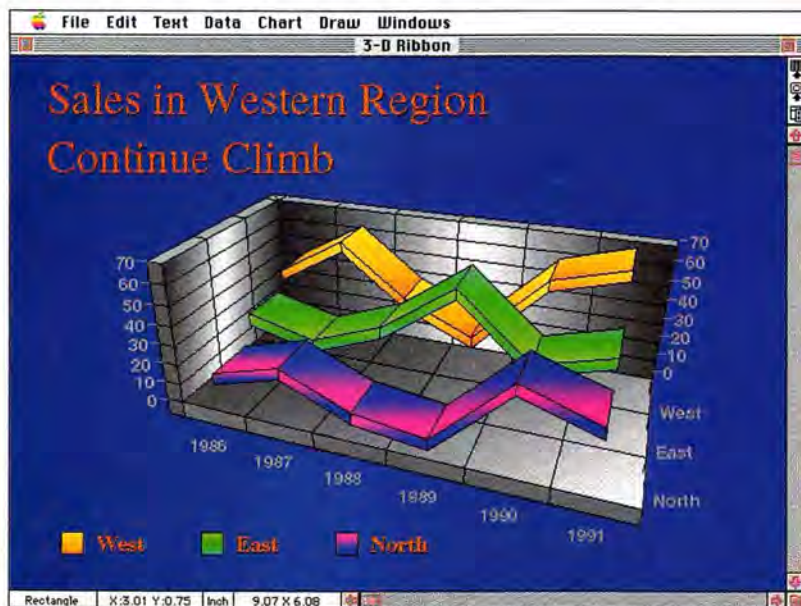
To get existing data into DeltaGraph Pro, you can use a variety of formats, including delimited text, WKS, or SYLK. Once you've imported or entered your data, you can use the program's formatting options to manipulate it: You can reformat numerical data as time, date, currency, percentage, or scientific value, for example, and you have a choice of fonts, styles, and colors.

In addition, the powerful Formula Builder lets you perform calculations on selected columns of data. DeltaGraph Professional supplies 24 built-in functions — including standard deviation, transcendental, and square roots — that you can use with formulas.

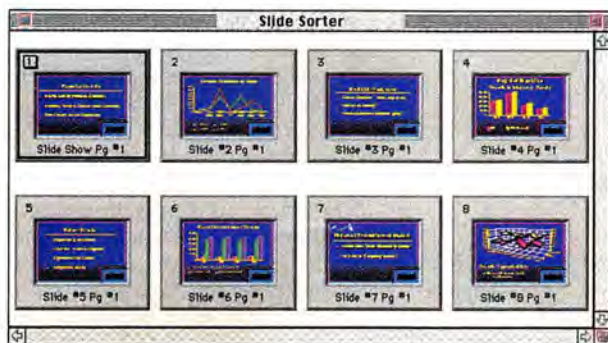
Once your data is in its final form, creating a chart is as easy as selecting the data (you make noncontiguous selections with the Command key) and choosing a chart type. The program's 40 chart types run the gamut from area, line, and scatter charts to sophisticated 3-D contour and surface plots. Most noteworthy are the presentation-quality organization and bullet charts (created with information from the text pages) and bubble, time line, and ribbon charts.

DeltaGraph Pro makes it easy to edit every element of a chart, from axis scaling to colors, from type formats to pattern fills to plot symbols. You can plot column charts with a variety of shapes, including pyramids and cylinders; enhance charts with drop shadows; and add color to any chart element. The package provides full gradient-fill support, including stars and diamonds, and a complete set of drawing tools, including a Bézier tool.

DeltaGraph Pro's scientific and technical charting abilities go far beyond those of its predecessor, DeltaGraph, but the package still can't compete with the features of a true scientific-graphing package such as Synergy's KaleidaGraph. New DeltaGraph Pro features designed to appeal to scientific and technical users include error bars; ternary (triangle), spider, contour, and surface charts; two new curve-fitting techniques (power and user-defined); correlation coefficients for all curve types; and automatic value-axis scaling (which maximizes the data area on a chart). The new package also lets you clip data axes to eliminate outlying data sets.



DeltaGraph Professional is a standout in the arena of business charting software. It offers more chart types than any other charting or spreadsheet program does, including a wide variety of striking 3-D charts such as the ribbon chart shown here.



To present the data you've charted, DeltaGraph Professional lets you create slides from charts and organize them into slide-show presentations, complete with transition effects.



In addition to charts that present numeric data, DeltaGraph Professional can also create bullet charts derived from text entered in outline format.

to high-end imagesetters and print to film recorders, using a custom 35mm page size. However, be aware that because DeltaGraph Pro is primarily a QuickDraw-based package, some blends and pattern fills don't translate into PostScript. Fortunately, the manual provides a complete description of what does and does not translate.

DeltaGraph Pro's manual is one of the best we've seen. A superior introduction helps users get going quickly, and a reference section answers common questions. The package's on-line context-sensitive help is also excellent, and the technical-support personnel are courteous and knowledgeable. DeltaPoint even provides users with a 60-day money-back guarantee.

System 7 support includes publish-and-subscribe, so you can link your charts to other applications for automatic updating. A built-in link to Excel is also included.

Users working in mixed Mac/PC environments will be glad to know that cross-platform compatibility is in the works for DeltaGraph Pro — according to DeltaPoint, a version for Windows is scheduled for release by the time you read this.

On with the Show

Without a doubt, DeltaGraph Pro's hottest new feature is its slide-show capability. You can create a slide out of any chart window, create transition effects between slides, specify how long each slide should be displayed, attach digitized sounds, and even loop the slide show for a continuous presentation. Using a mouse or an on-screen control panel, you can control your presentations manually or set them to run automatically. You can even import QuickTime movies into chart windows and use them in your slide shows. The package can also print handouts and speaker notes. A special player application lets you create stand-alone versions of your slide shows, so you can run them on Macs that don't have DeltaGraph Pro installed.

With its ambitious emphasis on multimedia and presentations, DeltaGraph Pro occasionally runs into memory problems. For example, you can't use transition effects in the same slide show as QuickTime movies. We encountered problems in creating complex charts that used transitions as well as sound effects, even though we were working with 8

megabytes of memory under System 7. To combat these problems, the manual recommends such memory-saving techniques as eliminating sounds and gradient fills or opting to size slides to the dimensions of the original chart window rather than to the screen size.

For fast and easy chart formatting, DeltaGraph Pro lets you store templates of your favorite charts in custom libraries. Each custom library can hold as many as 64 templates, all of which you can display in a single window in thumbnail view. Custom libraries can store a variety of chart elements, including text, backgrounds, charts themselves, and graphics. You can work with four open libraries simultaneously. In addition, DeltaGraph Pro provides a business-oriented clip-art collection of 101 EPS and PICT images in color as well as black-and-white.

To incorporate DeltaGraph Pro charts into other programs, you can export the charts in EPS, PICT, or Illustrator 1.1 format. The package makes provisions for printing charts and slides to QuickDraw and PostScript output devices. DeltaGraph Pro can print files directly to disk in PostScript format for future output

The Bottom Line

Currently, DeltaGraph Professional has no competition in the business-charting arena. No other charting or spreadsheet package offers the presentation tools, elegant interface, and variety of sophisticated chart types that DeltaGraph Pro does. Also unmatched is the program's flexibility for formatting, tweaking, and modifying every chart element. If you're looking for the best all-around business tool for graphing and presenting data, look no further than DeltaGraph Pro.

— Becky Waring

Get Info

DeltaGraph Professional

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**Published by:** DeltaPoint, Inc.,  
2 Harris Court, Suite B-1,  
Monterey, CA 93940;  
(408) 648-4000.

**Version:** 2.0.

**List Price:** \$295.



VIDEO

# Adobe Premiere

**QuickTime gains a professional editing tool for mixing video, audio, animation, and graphics.**

Adobe Premiere is a full-fledged QuickTime movie-editing studio in software. Sporting a slick, streamlined interface that makes the program accessible to novices, Premiere offers a treasure chest of sophisticated tools for assembling and editing QuickTime-based video. It's the first package to let you create transitions, mix sound, and overlay graphics and animation onto your QuickTime movies.

## Take 1

To begin using Premiere, you need to start with premade QuickTime movies (the current release of Premiere lacks drivers for QuickTime video digitizers such as the SuperMac VideoSpigot). Premiere also lets you incorporate PICS, PICT, and Photoshop images as well as various sound formats (snd, SoundEdit, and AIFF) into your movies. Any sounds that are already part of a QuickTime movie are brought into Premiere with the movie file.

To conserve disk space during the preliminary stages of movie-making, Premiere doesn't import the files you're working with. Instead, it creates a Project file comprising pointers to the data files

on-disk that you plan to use with a particular movie. As you begin selecting the various elements, called clips, for your movie, they are listed in the scrolling Project window. The window displays a thumbnail of the clip and information on the size, duration (in standard SMPTE format), and file type of each clip. Double-clicking on a clip brings up a window that lets you play, hear, or see it. For movie and sound clips, you can indicate in and out points to specify the portions of the clips you want.

Once you've specified all the movie clips you intend to use, you drag them from the Project window and place them in the appropriate channels in Premiere's Construction window. The program provides seven channels: two QuickTime channels, an overlay channel, a transition channel (for wipes and dissolves), and three audio channels. You can change the start times of movie and sound clips and shorten their duration, but Premiere doesn't provide a way of lengthening a clip beyond the duration of the original file. The program lacks a tool for reversing the playback order of QuickTime movies — a serious omission that could

easily be remedied with a plug-in filter.

A time-unit selector lets you examine whole sequences or frame-by-frame details. Amplitude controls let you change the volume of each audio channel over time, and a control bar lets you adjust the fading of superimposed still images.

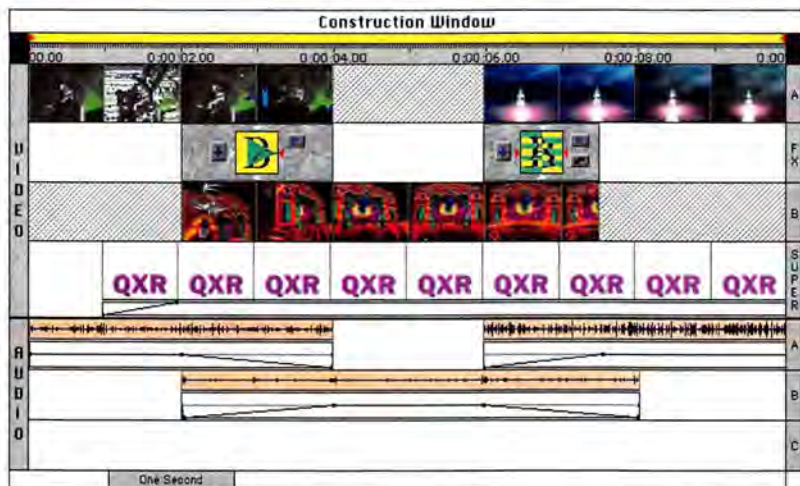
Once you've arranged your sequence of clips, you can preview selected frame ranges in a small preview window. Previews aren't immediate, because the clip data is read from disk, assembled with transitions and filters, and played back in low resolution. You can, however, suppress filters and sound to speed up the preview frame rate. When you're satisfied with the results, Premiere compiles the completed movie as a QuickTime document, using standard QuickTime options for frame size and rate and the type of compression.

The compilation process can be time-consuming, especially if you're splicing several large QuickTime movies, using numerous filters (or filters that process slowly), or mixing multiple 22-kilohertz audio channels.

Once movies have been compiled, you can open and play them with Premiere or any other QuickTime-compatible application or player. Within Premiere you can set QuickTime movies to play in a loop, or you can center them on-screen with black borders — a useful option for transferring the movie to a VCR (to do so, you need a display board equipped with video output).

Premiere supplies a variety of special-effects filters — for color balancing, brightness correction, tinting, posterizing, flipping, and tiling. You can apply these filters to still images or to movies. There's even a Mosaic filter, which you can animate by increasing and decreasing the effect as the clip plays. You can also use Photoshop-compatible filters, but you can't animate them. Our wish list for Premiere includes a greater variety of filter effects that can be modified as a clip plays (which will no doubt be forthcoming from Adobe and third-party vendors) and a few esoteric offerings (a channel offset for 3-D QuickTime movies would be a nice start).

Premiere lets you overlay and combine multiple filters, but be aware that this slows the preview frame rate and increases the movie-compilation time. For audio effects, the package supplies two filters: the Backwards filter and the programmable Echo filter.



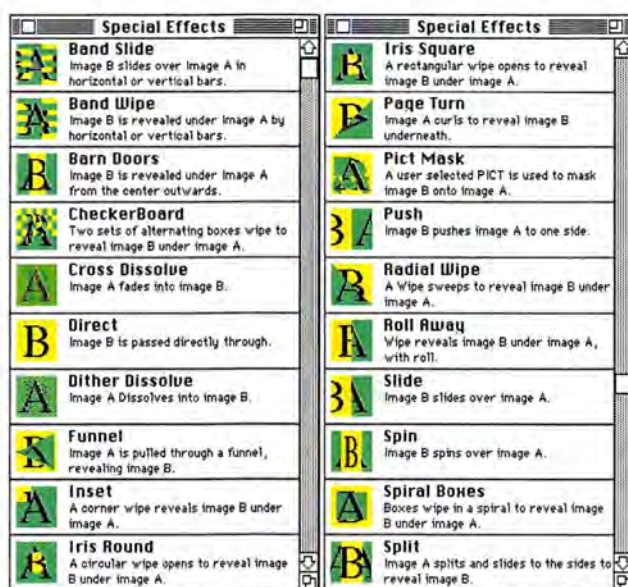
Adobe Premiere is a slick, full-featured editing tool for QuickTime movies. Its Construction window is your cutting room. You can assemble and edit movie elements: QuickTime-movie clips, transitions, superimposed graphics, and audio clips (bottom of window).



You can also place PICT images over videos and control the images' transparency with color keying so that specific colors in superimposed images are transparent. You can also use a gray-scale PICT as a mask between two overlapping movies, with one movie appearing only within the mask while the second movie plays in the background.

You can crop PICTs but you can't reposition or scale images with respect to video backgrounds, so you need to make your PICT or Photoshop images the same size as the final movie output to avoid scaling distortion. If an imported PICT or Photoshop image contains an 8-bit alpha channel, you can overlay the image on a QuickTime movie, using the alpha channel as a 256-level mask.

Premiere supplies a slew of special-effects transitions. Each effect, represented by an animated icon that illustrates the transition, has its own custom set of parameters, including direction, border color and thickness, and anti-aliased edges. In addition to wipes, dissolves, and iris effects, the package offers page flips, funnels, and other effects that were previously available only with expensive DVE



Adobe Premiere provides a variety of special-effects transitions. Each effect icon is animated to illustrate the transition it represents.

(digital-video effects) hardware.

Although Premiere can't compete with the variety of effects provided by the NewTek Video Toaster, its effects are varied enough to satisfy the most-demanding videophiles. Moreover, Premiere's effects are provided as separate modules, so it's safe to say that we'll see many new modules in the future.

Premiere is an impressive and much-needed addition to the QuickTime world, but its first iteration is missing a few essential ingredients. One obvious omission is the ability to generate an EDL (edit-decision list), a feature that would enable QuickTime-based off-line editing sessions to become professional on-line sessions, with high-quality video as the source material. In fact, Apple's QuickTime specification includes supplemental data tracks that could conceivably contain SMPTE-compatible frame indexing, MIDI pointers, and other synchronization data. It's safe to assume that Premiere will be updated to accommodate these features as well as other future additions to the QuickTime format. We also hope to see a QuickTime digitizer driver, a feature that would let users digitize video directly into the program, in the next version of Premiere.

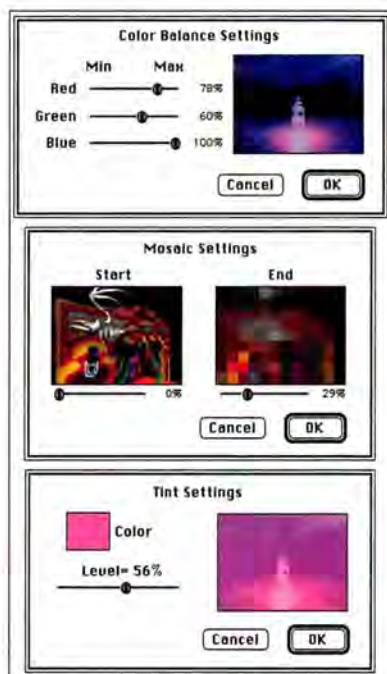
Surprisingly, Premiere lacks an Undo command, although its excellent interface makes such a command nearly unnecessary. Still, even though this omission didn't impede our testing during weeks of daily use, Undo is a command that no Mac software should be without.

Premiere's documentation is compact but complete. We found the program intuitive enough to use without referring to the manual, although when we looked at it, we discovered a few tricks and techniques that weren't immediately obvious. For example, in the Construction window, you can chop a movie clip into sections by pressing the Command key — the pointer turns into a razor blade that lets you "cut" the clip into parts.

#### The Bottom Line

Adobe Premiere offers all the tools you need in order to combine QuickTime movies, audio, animation, and graphics. The program's interface makes it accessible to novices, but with its wide variety of features and options, Premiere is also guaranteed to satisfy digital-movie experts. If you've joined the ranks of QuickTime videophiles, Premiere is a tool you won't want to be without.

— David Biedny



You can add special effects to your QuickTime movies by applying the filters provided with Premiere or by using Photoshop-compatible filters. Shown here is a sampling of Premiere's filters.

## Get Info

### Adobe Premiere

★★★★½

**Published by:** Adobe Systems Inc., 1585 Charleston Road, P.O. Box 7900, Mountain View, CA 94043; (415) 961-4400.

**Version:** 1.0.

**List Price:** \$495.



# STATISTICS SOFTWARE

## Minitab

**Despite new menus and dialog boxes, Minitab's stats package fails to transcend its mainframe roots.**

With its latest release, the Minitab statistics-software package attempts to distance itself from its mainframe heritage. Although the program's retooled interface is a significant improvement over that of previous versions, the overall result of the attempted transformation is split-personality software that's half character-based and half graphical.

### Historical Perspective

Before the Mac was even a glimmer in Apple's eye, Minitab had already enjoyed considerable success as a mainframe program. Offering a unique (for those days) interactive approach, the powerful program displayed results immediately after users typed commands. By contrast, competing programs required a

long waiting period while command files were batch-processed. Minitab's interactivity, combined with its relatively unstructured command language, set new standards for convenience and ease of use in the statistics-software arena.

However, because it was little more than the mainframe program encased in a Mac shell, Minitab's debut on the Mac several years ago was a disappointment. Ironically, the very strengths that made it a success in the mainframe world became liabilities on the Mac. Despite the program's statistics-processing power, its interactive command-line structure seemed almost archaic compared with the Mac's point-and-click menu-driven approach, and the character-based graphs it produced looked downright shoddy on

a high-resolution-graphics platform such as the Mac.

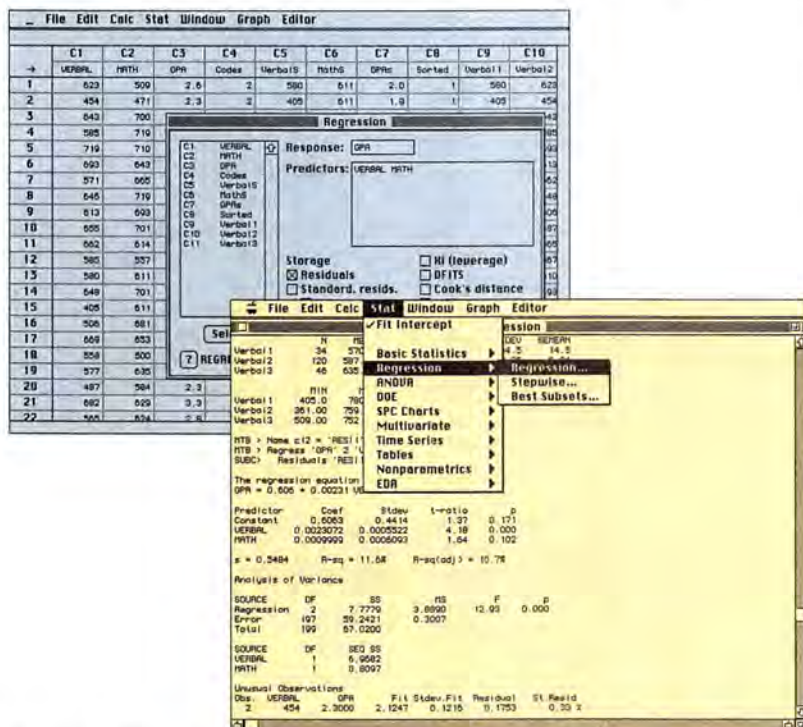
With the latest release of the program, Minitab's makers have attempted to meet the expectations of Mac users, but they meet them only halfway. The most notable enhancement to the package is the addition of standard Mac menus and dialog boxes for accessing all but the program's most complex functions. The dialog boxes assist users in selecting the appropriate input for specific analytical tasks, eliminating the need to reference the package's more than 200 commands and enter them manually.

In addition, the new spreadsheetlike Data Editor greatly facilitates data entry and editing. Although you can't select multiple cells for cutting or pasting, the spreadsheet metaphor is a welcome alternative to the previous version's approach, which forced users to either enter data, using tedious command lines, or import data from other applications.

The old Minitab interface lurks just below the surface of these amenities, however. The program translates menu commands into traditional Minitab commands, which appear in a scrolling Session window. The Session window is pure pre-Mac Minitab. You can opt to enter commands directly into the window, and it serves as the primary display for all output tables and error messages. As you would expect, the Session window is consistent with PC, minicomputer, and mainframe versions of Minitab, a helpful feature for users who regularly transfer Minitab files among platforms. For almost everyone else, however, it's a throwback feature that ultimately undermines the advantages of Minitab's improved interface.

What's more, many of Minitab's graphs remain limited to the character-based output of the Session window. Even the program's new "high-resolution" graphs, including scatterplots and histograms, fail to impress, and the program doesn't update its graphs to reflect changes in the data. Instead, you must create a new and separate graph to view each change.

To its credit, the new release includes a broad range of statistical procedures that should satisfy all but the most technically advanced users. Retaining the program's strong emphasis on regression analysis, Minitab has added a GLM (general linear model) command that permits unbalanced multifactorial ANOVA (analyses of variance), complete with the



The latest release of the Minitab statistics-software package features a more Mac-like interface. However, the spreadsheetlike data-entry window and dialog box shown here (top) aren't enough to conceal the program's mainframe heritage, which is readily apparent in the Session window (bottom).



calculation of F ratios. Minitab also makes a concession to current trends in statistics by including several EDA (exploratory data analysis) commands, but it's no match for Data Desk or JMP in this respect.

Minitab's powerful macro capability remains a unique asset that you can use to automate repetitive tasks as well as to significantly extend the program's capabilities. Minitab's documentation is a vast improvement over that of previous versions. Aside from a few brief tutorials, however, you won't find any references to the Mac version's dialog boxes. Instead, the documentation refers almost exclusively to the non-machine-specific commands that appear in the Session window. Excellent context-sensitive on-line help somewhat compensates for this.

Minitab is available in two versions: one for Macs equipped with a math coprocessor (Minitab Accelerated) and one for all other Macs. The unaccelerated version is noticeably slow on 68000-based machines.

#### The Bottom Line

The new release of Minitab is a major improvement over previous versions. In its favor, the program's command-line interface is relatively easy to use when compared with that of other mainframe-derivative packages such as SYSTAT or SPSS. All of Minitab's powerful statistical procedures are clearly defined and easy to locate, and you can expand the program's capabilities by adding custom procedures via macros.

Ultimately, however, Minitab's links to its mainframe past weigh heavily against it. In the end, most Mac users will probably feel more comfortable with StatView, a statistics package that's not quite as capable as Minitab but that employs a more consistent and fully implemented Mac interface.

— Ted Landau

## Get Info

### Minitab

\$\$\$½

**Published by:** Minitab, Inc., 3081 Enterprise Drive, State College, PA 16801; (814) 238-3280.

**Version:** 8.2.

**List Price:** \$695.

## OCR

# OmniPage Professional

**Caere's updated and feature-rich OCR package draws even with the competition.**

OmniPage Professional is powerful, flexible OCR software that can hold its own against high-end rivals WordScan Plus and AccuText. With the addition of support for multiple zone selection and a unique image-processing tool, the System 7-savvy OmniPage Pro is a significant improvement over its predecessor, OmniPage.

#### Reading It Right

OmniPage Pro's most significant feature is support for selection of multiple recognition zones on a page, a capability that both WordScan Plus and AccuText include. You can define different zones interactively for each page of a multipage job before it's processed, making it possible to preedit scans and dramatically shorten document-processing time. You can specify zones as graphic, numeric (5 will never again be read as S), or all characters (mixed text and numbers). In addition, special column-recognition settings let OmniPage Pro handle tables and worksheet formats as well as legal-pleading papers with line numbers.

OmniPage Pro's interface is improved over that of the previous version, and the

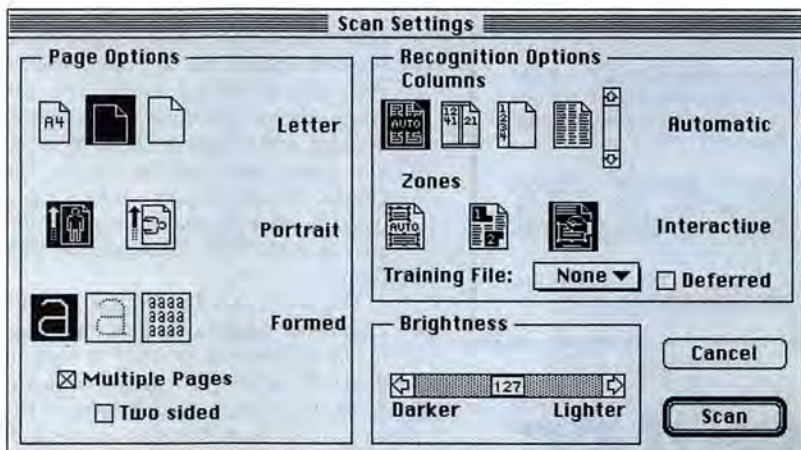
spelling-checker and dot-matrix modules, which were formerly separate items, are now integrated into the new package.

Accuracy and speed, hallmarks of the original OmniPage, are still there in OmniPage Pro. The new package also supports deferred processing as well as the ability to create training files, so you can teach OmniPage to recognize special symbols and custom characters. A training file serves as a kind of user dictionary, assisting the package's built-in recognition engine.

The original package's text editor has been supplemented with a ruler, tabs, and Font and Format menus, so you can format text before exporting it or making it available as a published edition under System 7.

OmniPage Pro requires System 7. In addition to publish-and-subscribe, the software supports Apple events, TrueType, and Balloon Help.

If your Mac is connected to a Hewlett-Packard ScanJet IIc, you can use OmniPage Pro in combination with HP's AccuPage technology, which automatically adjusts the brightness for different sections of a scanned page. It increases the



OmniPage Professional is a serious contender for the OCR-software heavyweight crown. It's fast and accurate and provides support for selecting multiple zones on each page of a multipage job.





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**OmniPage Professional**, the only OCR package to include an image processor, is an excellent choice for OCR users who process many photos and graphics as well as text. The Graphic Editor provides a masking tool, shown here, and can create line art and continuous-tone images with as many as 256 shades of gray.

package's accuracy in reading poor-quality documents and articles printed on colored backgrounds.

By far, **OmniPage Pro's** most interesting feature is **The Graphic Editor**, a separate gray-scale image-processing program for scanned photos and graphics. The Graphic Editor can create black-and-white line art or continuous-tone images with as many as 256 shades of gray. The Graphic Editor exists as a separate program, but if you have at least 5 megabytes of RAM and a compatible scanner (The Graphic Editor supports many scanners, including the Apple OneScan and the HP ScanJet and ScanJet IIC), you can access The Graphic Editor by issuing an **OmniPage** menu command.

With **The Graphic Editor**, you can edit gray-scale images by using basic image-enhancement tools such as smoothing brushes, a pencil, and an eraser. There's even an anti-aliasing brush. You can create special effects, using the **Posterize**, **Solarize**, and **Negative** filters. You can also resize, rotate, and flip images. The Graphic Editor supports various compression schemes, and it can export images in **EPS**, **TIFF**, **MacPaint**, or **PICT** formats.

You won't find **The Graphic Editor's** capabilities equal to those of **Photoshop** or **Digital Darkroom**, but they're useful if your OCR work involves many photos as well as text. One frustrating aspect of **The Graphic Editor**, however, is its nonstandard Mac interface. Although it provides the standard collection of selection tools (lasso, polygon, and rectangle), the tools don't behave as expected, because they're

designed primarily to create masks. As a result, selecting image areas to move or delete becomes a multistep, convoluted process.

For optimal use of **OmniPage Pro**, we recommend a 68030-based Mac with at least 8 megabytes of RAM.

### The Bottom Line

As the first serious OCR package for the Mac, **OmniPage** was a trailblazer that featured impressive accuracy and speed, but its feature set was eclipsed last year with the release of **WordScan Plus** and **AccuText**. The introduction of **OmniPage Professional**, however, restores the package to its position as a top contender for the OCR heavyweight crown. The addition of support for selecting multiple zones on a page is a significant improvement, and **The Graphic Editor** gray-scale-image processor, despite its somewhat clumsy interface, is a valuable feature that will appeal to OCR users who process many photos and graphic images as well as text.

— Gregory Wasson

### Get Info

#### OmniPage Professional

★★★★½

**Published by:** Caere Corp., 100 Cooper Court, Los Gatos, CA 95030; (408) 395-7000.

**Version:** 2.0.

**List Price:** \$995.



# Shift Worker and Swing Shift

**Two scheduling programs target the task of setting up complicated employee work shifts.**

Planning complicated work schedules is never easy, especially if your business deals with multiple work shifts that frequently vary. Swing Shift and Shift Worker are two programs designed to ease the task of organizing complicated work-shift schedules.

## Shift Worker

Shift Worker uses expert-system logic, which lets it make simple work of fairly complex schedules. The program looks outdated (it's reminiscent of 128K Mac software), but as a scheduling tool for small businesses, it works quickly and accurately.

Entering schedule information is easy. You set up the program's calendar, beginning with your first business day, and then you specify the number of employees needed for each shift. Shift Worker handles a maximum of ten shifts, which you define according to start time, meal breaks, and end time. Finally, you enter a description of employee shift requirements and requests, including maximum work duration, requested number of hours, and overtime preferences. Absences and

leaves go in a separate subdialog box. You can print your data-entry forms to facilitate data collection.

Once you've entered your data, you activate Shift Worker with a single command. You get a schedule dialog box that includes the name of each employee and the assigned shift for each day of the week.

Shift Worker is limited to creating schedules in full-hour increments. If you want to schedule shifts that incorporate half-hour increments, you're out of luck. Moreover, not only does Shift Worker's interface look like that of early Mac software but it also works like it. Every window is implemented as a dialog box, for example, and all windows are fixed.

## Swing Shift

Although Shift Worker's Spartan feature set may be sufficient for small businesses, the HyperCard-based Swing Shift has more-hefty scheduling features: It can handle a maximum of 250 employees and as many as 150 shifts. Despite these impressive credentials, however, the program's busy, complicated interface is

**File Edit Schedule**

First Name: [ ] Last Name: Able Phone: 555-8356

Seniority Date: Month [2] Day [2] Year [19][88]

Max Hours: [40] Target Hours: [40]

☒ Prefers Overtime  
☐ Does NOT Prefer Overtime

Shift Availability  
 Scheduled Absence  
 NO absence scheduled

A-B  
C-D  
E-F  
G-H  
I-J  
K-L  
M-N  
O-P  
Q-R  
S-T  
U-V  
W-X  
Y-Z

Previous Record  
Next Record

DONE NEW Delete Undo

Shift Worker offers a straightforward approach to work-shift scheduling for small businesses, but its interface is outdated.

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## NEW ON THE MENU REVIEWS

Swing Shift can handle larger, more complex work-shift schedules than Shift Worker can, but its HyperCard interface is clumsy and difficult to use.

a serious limitation.

Setting up a schedule in Swing Shift requires four steps: creating the shifts, defining work patterns, entering employee information, and scheduling. All these tasks are accomplished from within a single HyperCard stack.

Swing Shift's most distinctive feature is its ability to incorporate work patterns into schedules. You create work patterns by defining sets of rules that govern the workers' shifts. For example, you can specify that workers must take one day off for every three days they work. If you have a large organization, multiple work patterns and shifts can quickly create a complex schedule that would trip up noncomputerized users.

After you've defined work patterns, you enter employee scheduling information, which can include the number of hours as well as requests for day, evening, and weekend shifts. A pop-up menu lets you link work patterns to each employee.

When you're ready to set up your work-shift schedule, Swing Shift can handle the entire process automatically or you can set up the schedule manually and have Swing Shift prompt you if scheduling conflicts occur. However, Swing Shift's interface makes the scheduling process less than intuitive and is sometimes completely baffling. The scheduling tools are excellent, but too often they're obscured by puzzling icons and cryptic abbreviations. Swing Shift has the

power to handle complex schedules, but users must invest considerable time learning to use it.

### The Bottom Line

Shift Worker's straightforward implementation makes it easy to learn and use, but the program's interface needs updating and its usefulness is severely hobbled by the absence of half-hour shift increments. Swing Shift's HyperCard interface design looks good, but it obscures many of the program's powerful features.

— Dan Rasmus

## Get Info

### Shift Worker

\*\*\*

Published by: Expert Systems, Inc., 2616 Quebec Avenue, Melbourne, FL 32935; (407) 242-0140.

Version: 1.0.

List Price: \$595.

### Swing Shift

\*\*\*

Published by: Computed Designs, P.O. Box 802, Temple City, CA 91780; (818) 287-5496.

Version: 2.0.

List Price: \$595.







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 4751 ⑦ Aldus Persuasion 2.1... 325.  
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| 4756                                             | 7 Hellcats Over the Pacific 1.0 ... 39.          |
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| 2276                                             | 7 Kid's Time 1.3 or 5642 7 Kid's Math 1.1 25.    |
| 1517                                             | 7 ReadingMaze ... 25. 1513 7 (Color) ... 35.     |
| 4334                                             | 7 NumberMaze ... 25. 8527 7 (Color) ... 35.      |
| 8044                                             | 7 NM Decimals & Fractions (Color) ... 35.        |



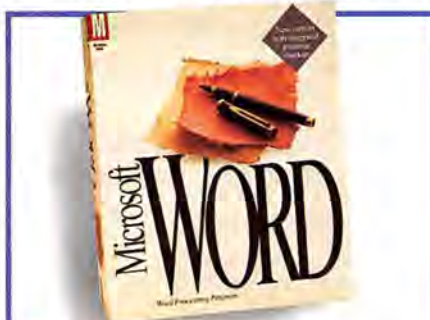
**★Deneba Software ... 30 day MBG**  
 3227 7 Canvas 3.02—1991 MacUser Editors' Choice Award for Best Drawing Program. Features Bezier font outlines, professional word-processor-like text capabilities, object blending, a freehand Bezier curve tool, and more. ... \$248.

|                                                                                              |                                                                                               |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>★MECC ... 30 day MBG</b>                                                                  |                                                                                               |
| 3963                                                                                         | 7 Oregon Trail 1.0 ... 28.                                                                    |
|                                                                                              | 7 Number, Word, or Super Munchers ea. 28.                                                     |
| <b>★MicroMaps ... 30 day MBG</b>                                                             |                                                                                               |
| 2784                                                                                         | 7 KidMaps 1.0 ... 16.                                                                         |
| <b>★Microsoft ... 30 day MBG</b>                                                             |                                                                                               |
| 2868                                                                                         | 7 Flight Simulator 4.0 (CP) ... 42.                                                           |
| <b>★Nordic Software ... 30 day MBG</b>                                                       |                                                                                               |
| 8258                                                                                         | 7 Turbo Math Facts 2.0 ... 24.                                                                |
| 8260                                                                                         | 7 Word Quest 2.1 ... 30.                                                                      |
| 8257                                                                                         | 7 PreSchool Pack - Color 1.0 ... 34.                                                          |
| 2716                                                                                         | 7 Word Search Deluxe 1.04 ... 34.                                                             |
| <b>★Penton Overseas ... 30 day MBG</b>                                                       |                                                                                               |
|                                                                                              | 7 VocabuLearn/ce Levels I & II (Span., Fren., Germ., Ital., Rus., Japan., & Heb.) ... ea. 35. |
|                                                                                              | 7 VocabuLearn/ce Level III (Span., Fren., Germ., Ital., Rus., & Japan.) ... ea. 35.           |
|                                                                                              | 7 PICTURE-IT! (Spanish, French, German, & Italian) ... ea. 40.                                |
| <b>★Personal Training Sys. ... 60 day MBG</b>                                                |                                                                                               |
| Limited time special—Buy an entire PTS series & pay only \$39 for each module in the series. |                                                                                               |
|                                                                                              | 7 Basic Macintosh (modules 1-4) ... ea. 59.                                                   |
|                                                                                              | 7 Converting 6.0 to 7.0 (modules 1-2) ea. 59.                                                 |
|                                                                                              | 7 Excel 2.2, 3.0 (modules 1-9) ... ea. 59.                                                    |
|                                                                                              | 7 FileMaker Pro (modules 1-5) ... ea. 59.                                                     |
|                                                                                              | 7 FreeHand 3.0 (modules 1-5) ... ea. 59.                                                      |
|                                                                                              | 7 HyperCard 1.0, 2.0 (modules 1-4) ... ea. 59.                                                |



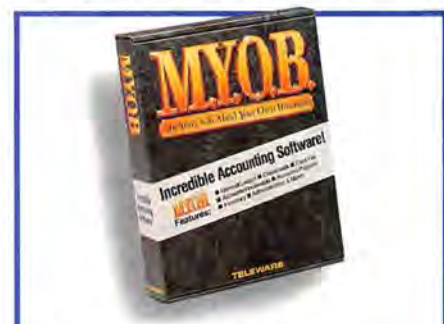
**★Lotus Development ... 60 day MBG**  
 3606 7 1-2-3 for the Mac—Takes full advantage of the Mac. Directly manipulate & format all data, text, & graphics. Offers true 3D worksheets & Excel & 1-2-3 file compatibility \$329.  
 3604 7 1-2-3 Competitive Upgrade ... 89.

|                                            |                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>★HyperGlot Software ... 30 day MBG</b>  |                                                                                         |
|                                            | 7 Word Torture 4.0—Beginner to Advanced (Span., Fren., Germ., Ital. & Rus.) ... ea. 34. |
|                                            | 7 Pronunciation Tutor - Beginner (Span., Fren.) ... ea. 35. (Germ., Chin.) ... 38.      |
|                                            | 7 Tense Tutor 2.0 (Spanish, French, German, Italian) ... ea. 38.                        |
|                                            | 7 Survival Manual (Span., Fren., Germ., Ital., Chin. & Rus.) ea. 38.                    |
| <b>★Inline Design ... 30 day MBG</b>       |                                                                                         |
| 1562                                       | 7 3 in Three or 1944 Swamp Gas ... 31.                                                  |
| 8809                                       | 7 Tesserae ... 31. 3414 7 Mutant Beach ... 43.                                          |
| 7622                                       | 7 Darwin's Dilemma 2.0 (Apr. '92) ... 31.                                               |
| <b>Interplay Productions</b>               |                                                                                         |
| 1894                                       | 7 BattleChess (3D animation) ... 29.                                                    |
| 3520                                       | 7 Dvorak on Typing (Apr. '92) ... 29.                                                   |
| 1893                                       | 7 CheckMate (infinite play levels) ... 31.                                              |
| 3534                                       | 7 Castles 1.0 (May '92) ... 34.                                                         |
| <b>★Learning Company ... 30 day MBG</b>    |                                                                                         |
| 2670                                       | 7 Reader Rabbit 3.0 (CP) (ages 4-7) ... 34.                                             |
| 3272                                       | 7 Super Solvers: OutNumbered! 1.0 ... 34.                                               |
| 3687                                       | 7 Super Solvers: Midnight Rescue! ... 34.                                               |
| 3281                                       | 7 The Writing Center 1.0 ... 51.                                                        |
| <b>★Leister Productions ... 30 day MBG</b> |                                                                                         |
| 7126                                       | 7 Reunion 3.0 ... 115.                                                                  |
| <b>Mallard Software</b>                    |                                                                                         |
|                                            | 7 Scenery Disks 1-4 Flight Simulator. ea. 25.                                           |



**★Microsoft ... 30 day MBG**  
 4902 7 Word 5.0—New features include an integrated grammar checker, Drag-and-Drop text, and a new Print Merge Helper. Offers all the tools you need to make every day easier. \$295.  
 1503 7 Word 5.0 Upgrade. ... 125.

|                                          |                                                 |
|------------------------------------------|-------------------------------------------------|
|                                          | 7 PageMaker 4.0 (modules 1-6) ... ea. \$59.     |
|                                          | 7 Persuasion 2.0 (modules 1-4) ... ea. 59.      |
|                                          | 7 QuarkXPress 3.0 (modules 1-4) ... ea. 59.     |
|                                          | 7 System 7 (new users) (modules 1-3) ea. 59.    |
|                                          | 7 Word 4.0 (modules 1-4) ... ea. 59.            |
|                                          | 7 Works 2.0 (modules 1-4) ... ea. 59.           |
| <b>Sierra On-Line</b>                    |                                                 |
| 9733                                     | 7 Hoyle's Book of Games II ... 20.              |
| 2412                                     | 7 Rise of the Dragon ... 34.                    |
| 7367                                     | 7 Space Quest III 34. 2522 7 Space Quest IV 39. |
| 3545                                     | 7 EcoQuest (May '92) ... 35.                    |
| 2523                                     | 7 King's Quest V ... 39.                        |
| 3549                                     | 7 Police Quest III (May '92) ... 39.            |
| 3552                                     | 7 Leisure Suit Larry V ... 39.                  |
| <b>Sir-Tech Software</b>                 |                                                 |
| 8229                                     | 7 Bane of Cosmic Forge ... 35.                  |
| <b>★SoftStream ... 30 day MBG</b>        |                                                 |
| 4489                                     | 7 Galactic Frontiers ... 38.                    |
| 3501                                     | 7 Classic Trilogy (Cribbage, Whist, Hearts) 49. |
| 3472                                     | 7 Family Cards (Solitaire, Rummy, War) ... 49.  |
| <b>Software Toolworks</b>                |                                                 |
| 4619                                     | 7 Mavis Beacon Typing 1.3 (CP) ... 32.          |
| 1908                                     | 7 World Atlas 1.0 ... 52.                       |
| <b>★Spectrum Holobyte ... 30 day MBG</b> |                                                 |
| 3464                                     | 7 Tetris 1.3 or 6112 7 Welltris 1.1 ... ea. 22. |
| 3017                                     | 7 Wordtris 1.0 ... 27.                          |
| 3459                                     | 7 Falcon 2.2.1 or 8181 7 Vette 1.0 ... ea. 33.  |



**★Teleware ... 30 day MBG**  
 7616 7 M.Y.O.B. 3.0—Powerful and easy to use. Command Centers are arranged in a flowchart form making the program unique. Impressive new features include importing, back-order tracking, increased password protection, etc. ... \$138.

|                                          |                                                                                           |
|------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>★Spinnaker ... 30 day MBG</b>         |                                                                                           |
| 2328                                     | 7 Sargon 1.03 (CP) (chess) ... 28.                                                        |
| <b>★Strategic Studies ... 30 day MBG</b> |                                                                                           |
| 2685                                     | 7 American Civil War 1.0 ... 29.                                                          |
| 3287                                     | 7 Warlords (empires at war) ... 34.                                                       |
| <b>StudyWare</b>                         |                                                                                           |
|                                          | 7 ACT, GMAT, GRE, or SAT Prep. ... ea. 29.                                                |
| <b>Terrace Software</b>                  |                                                                                           |
| 9970                                     | 7 Mum's The Word Plus 1.01 (color) ... 107.                                               |
| <b>★Toyogo ... 30 day MBG</b>            |                                                                                           |
| 7624                                     | 7 NEMESIS Go Master 5.0 ... 39.                                                           |
| 7623                                     | 7 NEMESIS Go Master Deluxe 5.0 ... 99.                                                    |
| <b>★TeleTypesetting ... 30 day MBG</b>   |                                                                                           |
| 5537                                     | 7 Digital Gourmet 1.0 ... 44.                                                             |
| <b>★Voyager ... 30 day MBG</b>           |                                                                                           |
| 2809                                     | 7 The Annotated Alice, 2836 7 Hitch Hiker's Guide to Galaxy, 2820 7 Jurassic Park ea. 15. |
| <b>★XOR ... 30 day MBG</b>               |                                                                                           |
| 6040                                     | 7 MacGolf Classic 1.1 ... 52.                                                             |

## VIDEO & SOUND MONITORS, MUSIC, MULTIMEDIA

|                                 |                                            |
|---------------------------------|--------------------------------------------|
| <b>★Ars Nova ... 30 day MBG</b> |                                            |
| 1215                            | 7 Practica Musica 2.3 ... 66.              |
| <b>Coda Music Systems</b>       |                                            |
| 8188                            | 7 MusicProse 189. 5604 7 Finale 2.6.1 549. |

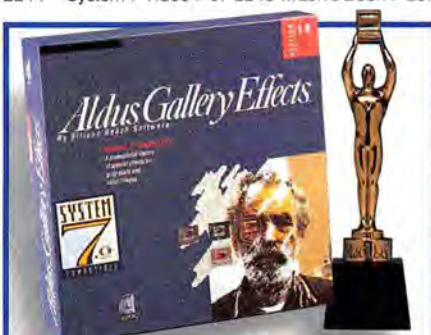


# we'll make it our treat.



★ **MacroMind•Paracomp ... 30 day MBG**  
 4598 ⑦ **MacRecorder Sound System PRO**—Includes MacRecorder and Sound Edit PRO. Complete sound capture and editing system. Record and edit voice, music and special effects ... **\$239.**  
 5486 **Sound Edit PRO** ... **207.**

★ **MacroMind•Paracomp ... 30 day MBG**  
 4598 ⑦ **MacRecorder Sound System PRO** ... 239.  
 5486 ⑦ **Sound Edit PRO** ... 207.  
 6159 ⑦ **MacroMind Accelerator 3.0** ... 135.  
 5087 ⑦ **MacroMind Director 3.1 (Apr. '92)** ... 799.  
 2246 ⑦ **MacroMind Three-D 1.0** ... 999.  
**MASS Microsystems**  
 2592 **QuickImage 24** ... 249.  
**NEC**  
 5009 **MacFG 8-bit Card** 799. 5018 **24-bit** 1699.  
 5021 **Multisync 6FG** ... 2899.  
 ★ **Nutmeg Systems ... 30 day MBG**  
 ⑦ **19" for SE, SE/30, II, IIsi** ... ea. 995.  
 ⑦ **19" for GrayScale SE/30, II, IIsi** ... ea. 1295.  
 ⑦ **20" Color System: SE/30, II, IIsi** ... ea. 2595.  
**Passport Designs**  
 3117 ⑦ **Master Tracks PRO 5 5.0** ... 339.  
 8250 ⑦ **Encore 2.51** ... 399.  
**PCTV**  
 2244 **System 7 Video** ... 9. 2245 **w/Lon's Book** ... 25.



★ **Aldus ... 30 day MBG**  
 2461 ⑦ **Aldus Gallery Effects 1.0**—1991 MacUser Editors' Choice Award for Best Visual Resource. Transforms images into works of art. Whether scanned or original art, you can apply professional-looking effects easily & in minutes **\$128.**

**RasterOps**  
 9784 **RasterOps 24SX** ... \$649. 8944 **24STV** ... \$829.  
 5378 **Image Pro (Accelerator for 24STV)** ... 829.  
**Software Toolworks**  
 5201 **The Miracle (piano teacher) (Apr. '92)** ... call  
**Sound Source**  
 3547 ⑦ **Star Trek: The Logical Collection** ... 29.  
 3607 ⑦ **Star Trek: The Final Frontier** ... 29.  
 4920 ⑦ **Star Trek: The Bundle (I gotta have both!)** ... 49.  
 ★ **SuperMac Technology ... 30 day MBG**  
 4122 **VideoSpigot LC or 4114 IIsi** ... special 349.  
 4164 **VideoSpigot (for NuBus)** ... special 399.  
 4134 **19" Gray-Scale/Mono Display** ... 999.  
 1805 **19" SuperMatch Color Display** ... 1799.  
 5000 **20" Dual-Mode Trinitron** ... 2699.  
 4720 **21" Platinum Two-Display** ... 1099.  
 1877 **Spectrum/8LC or 2026 S/8si** ... ea. 536.  
 1844 **Spectrum/8 Series III** ... 536.  
 1851 **Spectrum/24 Series III** ... 1525.  
 2330 **Spectrum/8-24 PDQ or 2231 PDQsi** ... 899.  
 ★ **Voyager ... 30 day MBG**  
 3921 ⑦ **Mozart "Dissonant" Quartet CD** ... 39.  
 3924 ⑦ **Shubert: "The Trout" Quintet CD** ... 39.  
 9322 ⑦ **Voyager Videostack CD 2.2** ... 65.

## CD-ROM

**Adobe Systems**  
 8794 ⑦ **Adobe Type On Call (CD-ROM)** ... 56.  
**Broderbund**  
 3730 ⑦ **Just Grandma and Me (CD-ROM)** ... 34.  
**CD Technology**  
 2321 **CD-ROM Caddy** ... 11. 2533 **(5 Pack)** ... 49.  
 8057 **Porta Drive CD-ROM** ... 599.  
 4140 ⑦ **Multimedia HANDisc** ... 75.  
 ★ **Cyan ... 30 day MBG**  
 2717 ⑦ **Cosmic Osmo 1.1 (CD-ROM)** ... 37.  
 ★ **Discovery Systems ... 60 day MBG**  
 9967 ⑦ **Nautilus (subscription, CD-ROM)** ... 20.  
 9965 ⑦ **Sherlock Holmes (CD-ROM)** ... 20.  
 9968 ⑦ **Birds of N. America (CD-ROM)** ... 32.  
 1874 ⑦ **Mammals of No. America (CD-ROM)** ... 32.  
 3683 ⑦ **Backpac Set 1 or 3679 Set 2** ... ea. 45.  
 ★ **Highlighted Data ... 30 day MBG**  
 7771 ⑦ **Webster's Dictionary (CD-ROM)** ... 159.  
 ★ **HyperGlott ... 30 day MBG**  
 7473 ⑦ **Learn To Speak French (CD-ROM)** ... 62.  
 7829 ⑦ **Learn To Speak Spanish (CD-ROM)** ... 62.  
 ★ **ICOM Simulations ... 30 day MBG**  
 3717 ⑦ **Sherlock Holmes Consulting Detective** ... 39.  
**NEC**  
 6636 **Image Gallery (1400 line art)** ... 246.  
 9441 **CDR-36M CD-ROM Portable Drive** ... 399.  
 2595 **General Reference CD-ROM Bundle (includes CDR36, kit & 7 titles)** ... 529.  
 5161 **CDR-73M CD-ROM Drive** ... 599.  
**Software Toolworks**  
 3915 **Grolier Encyclopedia (CD-ROM)** ... 249.  
 ★ **Voyager ... 30 day MBG**  
 3918 ⑦ **Baseball's Greatest Hits CD** ... 39.  
 3917 ⑦ **A Silly, Noisy House CD** ... 39.  
 3919 ⑦ **AmandaStories CD** ... 39.

## COMMUNICATIONS

### MODEMS, MAIL, NETWORKS

★ **Abaton ... 30 day MBG**  
 6266 **InterFax 24/96 Modem** ... 269.  
 ★ **Applied Engineering ... 30 day MBG**  
 8362 ⑦ **QuadraLink (with AE Shadow)** ... 205.



## Insignia Solutions

3441 ⑦ **SoftNode 1.0**—Add SoftNode to SoftPC, and your Mac not only can run MS-DOS applications, it can also share programs over a Novell PC Network! Your next PC could be a Macintosh ... **\$105.**

★ **Argosy Software ... 30 day MBG**  
 7872 ⑦ **Software Bridge/Mac 2.0.1** ... 99.  
 2447 ⑦ **RunPC/Remote** 139. 2448 ⑦ **Network** 279.  
 ★ **CE Software ... 60 day MBG**  
 8066 ⑦ **QuickMail (5 user)** ... 249. 8067 **(10)** ... 375.  
 1589 ⑦ **QuickMail (50)** ... 1549. 3489 **(100)** ... 2899.  
 ★ **CompuServe ... 60 day MBG**  
 1676 ⑦ **Macintosh Membership Kit 1.6** ... 25.  
 1673 ⑦ **CompuServe Navigator 3.1** ... 49.  
 1674 ⑦ **Membership Kit/Navigator Bundle** ... 72.  
 ★ **DataViz ... 60 day MBG**  
 1823 ⑦ **MacLink Plus/PC 6.0** ... 129.  
 4842 ⑦ **MacLink Plus/Translators 6.0** ... 109.  
 ★ **Dayna ... 60 day MBG**  
 DaynaPORT TRX: (BNC or 10BASE-T) ... ea. 87.  
 DaynaPORT E: (10BASE-T) ... ea. 164.  
 DaynaPORT E: SE, SE/30, II, IIsi, LC ... 183.  
 EtherPrint ... 345. 9888 **(10BASE-T)** ... 345.  
 8719 DaynaSTAR MiniHub ... 309.  
 3665 DaynaPORT SCSI/Link: (BNC or 10BASE-T) ... 279.  
 3664 NetMounter ... 57.



## Hayes

5101 **HayesConnect 3.0**—Share modems or other serial devices over an AppleTalk network. Includes password security, activity logging, unlimited client support, as well as System 7, and Multifinder Toolbox compatibility ... **\$75.**

410U

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# Who knows?

## Dove Computer

|      |                        |        |              |        |
|------|------------------------|--------|--------------|--------|
| 6758 | 7 DoveFax 2.0          | \$199. | 3352 NuBus   | \$229. |
| 9634 | 7 DoveFax Plus         | 265.   | 4111 NuBus   | 299.   |
| 4110 | 7 DoveFax LAN-5        | 329.   | 4109 NuBus-5 | 365.   |
| 4796 | 7 DoveFax LE           |        |              | 365.   |
| 5383 | 7 DoveFax PB (May '92) |        |              | 199.   |

## ★Farallon Computing ... 30 day MBG

Full line available. Partial listing.

|      |                                            |       |
|------|--------------------------------------------|-------|
| 9805 | 7 Timbuktu 4.0.2                           | 129.  |
| 4866 | 7 Timbuktu/Remote 3.0                      | 129.  |
| 6273 | PhoneNET StarConnector 10-Pack             | 129.  |
| 4869 | PhoneNET Connector 10-Pk (DIN8)            | 198.  |
| 2206 | PhoneNET StarController 307                | 899.  |
| 4802 | PhoneNET StarController 357                | 1025. |
| 4814 | PhoneNET StarController 377                | 1299. |
| 9961 | PhoneNET Card PC                           | 209.  |
|      | PhoneNET Ethernet Card (SE/30, II, si) ea. | 173.  |

## ★FreeSoft ... 30 day MBG

|      |                   |     |
|------|-------------------|-----|
| 6115 | 7 White Knight 11 | 85. |
|------|-------------------|-----|

## ★Global Village ... 30 day MBG

|      |                          |      |
|------|--------------------------|------|
| 8946 | 7 TelePort A300 1.06     | 129. |
| 8945 | 7 TelePort/FAX 1.06      | 169. |
| 5327 | 7 TelePort/Full FAX 2.02 | 219. |
| 5321 | 7 PowerPort/V.32 2.0     | 489. |

## Hayes

|      |                                  |      |
|------|----------------------------------|------|
| 5101 | HayesConnect 3.0 (modem sharing) | 75.  |
| 2300 | 7 Smartcom II for the Mac 3.3B   | 84.  |
| 1345 | OPTIMA 24 Modem                  | 155. |
| 3522 | OPTIMA 96 Modem                  | 389. |
| 7391 | ULTRA 96 Modem                   | 669. |
| 5024 | ULTRA 144 Modem                  | 799. |



## ★Prometheus ... 30 day MBG

8990 7 ProModem Ultima Home Office-V.32bis Ultima with voice feature added at an even lower price, turns your Mac into an answering machine. 14,400 bps data modem with V.42bis/MNP 5 & 9600 bps S/R fax & full voice capability! \$489.

## ★Practical Peripherals ... 30 day MBG

|      |                                     |      |
|------|-------------------------------------|------|
| 8994 | 2400 V.42 bis Modem                 | 125. |
| 7934 | PM9600SA Modem 1.26                 | 289. |
| 9849 | 7 SmartPack 9600 (with Smartcom II) | 349. |

## ★Prometheus ... 30 day MBG

|      |                               |      |
|------|-------------------------------|------|
| 2590 | 7 ProModem 2400 Mini Plus     | 129. |
| 3832 | 7 ProModem Remote Plus        | 225. |
| 4724 | 7 ProModem Home Office        | 259. |
| 8990 | 7 ProModem Ultima Home Office | 489. |

## ★PSI Integration, Inc. ... 30 day MBG

|      |                                  |      |
|------|----------------------------------|------|
| 5320 | 7 PowerModem (for PowerBook)     | 206. |
| 3143 | 7 COMstation ONE 195. 3142 7 TWO | 299. |
| 5340 | 7 COMstation FOUR                | 369. |
| 5339 | 7 TravelCOM (pocket modem)       | 489. |

## ★Shiva ... 30 day MBG

|      |                                        |       |
|------|----------------------------------------|-------|
| 3444 | 7 NetSerial 1.35                       | 275.  |
| 4347 | NetBridge or 4942 7 TeleBridge         | 409.  |
|      | NetModem/E (thick, thin, 10BASE-T) ea. | 1679. |

## Slitka/TOPS

|      |                      |               |      |
|------|----------------------|---------------|------|
| 4188 | Teleconnector (DIN8) | 23. 2230 (10) | 189. |
|------|----------------------|---------------|------|

|      |                                       |      |
|------|---------------------------------------|------|
| 6264 | 7 TOPS Network 3.1 187. 2419 (3 pack) | 249. |
|------|---------------------------------------|------|

## ★Software Ventures ... 30 day MBG

|      |                     |              |
|------|---------------------|--------------|
| 3455 | 7 MicroPhone II 4.0 | special 179. |
|------|---------------------|--------------|

## ★Synergy ... 30 day MBG

|      |                                     |      |
|------|-------------------------------------|------|
| 6618 | 7 VersaTerm 4.6. 90. 6619 7 PRO 3.6 | 177. |
|------|-------------------------------------|------|

## ★TechWorks ... 30 day MBG

|      |            |      |
|------|------------|------|
| 1582 | 7 GraceLAN | 285. |
|------|------------|------|

|      |                      |      |
|------|----------------------|------|
| 1584 | 7 GraceLAN Corporate | 689. |
|------|----------------------|------|



## ★FreeSoft ... 30 day MBG

6115 7 White Knight 11—11 award winning communications program that supports XMODEM, YMODEM, ZMODEM, Kermit, and Compu-Serve Error Correcting protocols. Includes Oktyo 1.0 and a free subscription to GENIE \$85.

## ★IBS ... 30 day MBG

|      |                      |                |      |
|------|----------------------|----------------|------|
| 5581 | DataClub Classic (3) | 265. 8580 (10) | 539. |
| 1495 | DataClub Elite       |                | 939. |

## Insignia Solutions

|      |                                    |      |
|------|------------------------------------|------|
| 7557 | 7 Access PC 1.1                    | 60.  |
| 9726 | 7 Entry Level SoftPC 2.5           | 125. |
| 4089 | 7 Universal SoftPC 2.5             | 195. |
| 3229 | 7 SoftAT 2.5                       | 299. |
| 3441 | 7 SoftNode 1.0. 105. 3454 (10 Pak) | 699. |

## Logicode Technology

|      |                       |      |
|------|-----------------------|------|
| 5522 | Quicktel Xeba M2400X  | 99.  |
| 5525 | Quicktel Xeba M9624XV | 199. |
| 5524 | Quicktel Xeba M9696XV | 399. |
| 5523 | Quicktel Xeba M1414XV | 459. |

## MASS Microsystems

|      |              |      |
|------|--------------|------|
| 3655 | MASS FM24/96 | 185. |
|------|--------------|------|

## ★Microcom ... 30 day MBG

|      |                                  |      |
|------|----------------------------------|------|
| 7459 | 7 CarbonCopy Mac 2.0 (single)    | 59.  |
| 1556 | 7 CarbonCopy Mac 2.0 (unlimited) | 179. |

## ★Microsoft ... 30 day MBG

|      |                                 |      |
|------|---------------------------------|------|
| 9444 | 7 Microsoft Mail 3.0 (1-5 user) | 269. |
|------|---------------------------------|------|

## ★Orange Micro ... 30 day MBG

|      |                      |       |
|------|----------------------|-------|
| 2392 | 7 Orange386 (20 MHz) | 1799. |
|------|----------------------|-------|



## ★Berkeley Systems ... 30 day MBG

2198 7 More After Dark (M.A.D.)—Honorable Mention—1991 MacUser Editors' Choice Award for Best Desktop Diversion. 25 new displays. \$23.  
5737 7 After Dark 2.0V—Stops screen burn-in. 28.  
2196 7 After Dark & M.A.D. Bundle. 40.

|      |                                      |        |
|------|--------------------------------------|--------|
| 1781 | 7 GraceLAN Update Mgr. Single Zone   | \$169. |
| 1782 | 7 GraceLAN Update Mgr. Multiple Zone | 285.   |
| 1767 | 7 GraceLAN Asset Manager             | 499.   |
| 1763 | 7 Hubworks-8                         | 289.   |

Ethernet Cards. call

## ★White Pine Software ... 30 day MBG

|      |           |                        |      |
|------|-----------|------------------------|------|
| 3535 | 7 Mac 240 | 139. 3541 7 Mac 241    | 199. |
| 2404 | 7 Mac 320 | 99. 2403 7 Mac 330     | 169. |
| 2400 | 7 Mac 340 | 239. 3544 7 Exodus 3.0 | 199. |

## ★Zoom Telephonics ... 30 day MBG

|      |                                       |      |
|------|---------------------------------------|------|
| 1168 | 7 MX2400R Modem (w/7 QuickLink II)    | 69.  |
| 1176 | 7 MX2400S Modem (with SendFax 9600)   | 79.  |
| 2310 | 7 FX9624 Send/receive Fax/Modem       | 119. |
| 3576 | 7 FX9624V Send/receive V.42 Fax/Modem | 145. |
| 1179 | 7 V.42bis Modem (with MacPack)        | 125. |
| 2311 | 7 V.32 Turbo Modem (with MacPack)     | 339. |
| 3553 | 7 Fax/Modem VFX V.32bis               | 299. |

## INPUT/OUTPUT

### KEYBOARDS, MICE, TRACKBALLS, PRINTERS & SCANNERS

## ★Abaton ... 30 day MBG

|      |                                         |       |
|------|-----------------------------------------|-------|
| 7432 | 7 Scan 300/GS (reqs. Scan Kit)          | 829.  |
| 2742 | Scan 300/Color (reqs. installation kit) | 989.  |
| 1496 | Inst. Kit for 300/Color with Photoshop  | 479.  |
| 1537 | LaserScript LX                          | 1729. |



## ★Salient Software ... 30 day MBG

4838 7 AutoDoubler 1.05—New! Automatically double the space on your drive. \$45.  
7404 7 DiskDoubler 3.7.5—Award winner. Compress files for telecommunication, backups, or transfer to floppies. Can use w/AutoDoubler 45.

## ★Advanced Gravis ... 30 day MBG

|      |                      |     |
|------|----------------------|-----|
| 9963 | 7 Gravis Mouse Stick | 62. |
| 9964 | 7 Gravis Super Mouse | 79. |

## American Power

|      |                  |                       |      |
|------|------------------|-----------------------|------|
| 5895 | UPS 110SE        | 129. 2384 w/QuickKeys | 149. |
| 3447 | SurgeArrest Plus |                       | 39.  |

## ★Appoint ... 30 day MBG

|      |                                      |     |
|------|--------------------------------------|-----|
| 2760 | Thumbelina Mac (mini 3 button mouse) | 65. |
| 2769 | MousePen Pro Mac                     | 65. |

## Caere

|      |                             |      |
|------|-----------------------------|------|
| 8124 | 7 Typist Plus Graphics      | 459. |
| 4476 | 7 OmniPage 3.0              | 459. |
| 4930 | 7 OmniPage Professional 2.0 | 649. |

## CoStar

|      |                                    |         |
|------|------------------------------------|---------|
| 1418 | AddressWriter                      | 479.    |
|      | 7 Stingray ADB (platinum or black) | ea. 79. |

## ★Curtis Manufacturing ... 30 day MBG

|      |                   |     |
|------|-------------------|-----|
| 8046 | MVP Mouse (MVP-1) | 89. |
|------|-------------------|-----|

## ★Datadesk ... 30 day MBG

|      |                                |                       |      |
|------|--------------------------------|-----------------------|------|
| 9830 | 7 MAC101E                      | 129. 2384 w/QuickKeys | 149. |
| 6901 | Switchboard (modular keyboard) |                       | 159. |

## ★Everex ... 30 day MBG

|      |                                       |     |
|------|---------------------------------------|-----|
| 1144 | 7 Silhouette Trackball 1.0 (ADB Macs) | 78. |
|------|---------------------------------------|-----|

## ★GDT Softworks ... 30 day MBG

|      |                                        |     |
|------|----------------------------------------|-----|
| 3429 | 7 BetterWriters 1.0 (software drivers) | 39. |
| 2499 | 7 PowerPrint                           | 99. |



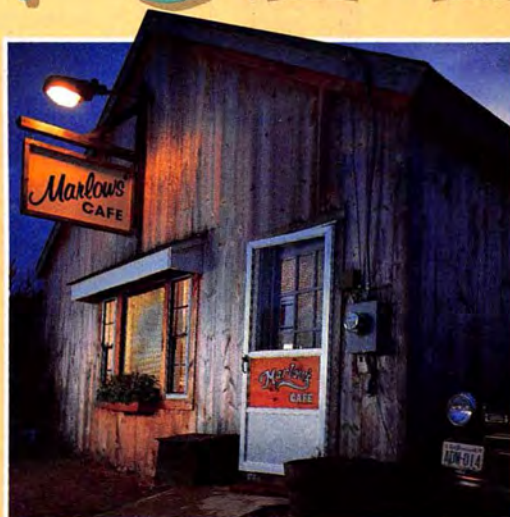
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## Apple Computer

1074 **System 7**—Balloon help, File sharing, Publish & Subscribe, Aliasing, TrueType, Virtual memory, 32-bit addressing. Buy now & get a free PCTV<sup>®</sup> video (limit 1 per customer) with Lon Poole explaining all these new features \$99.

## ★PSI Integration, Inc. ... 30 day MBG

3135 PSI MultiColor ... 99.  
3137 Crunch-It! LC ... 113.

## ★Sigma Designs

1501 DoubleUp with DiskDoubler 3.7 ... 179.

## ★Total Systems ... 30 day MBG

7817 16 MHz Mercury 030 (for Mac SE) ... 359.  
7816 20 MHz Gemini 030 ... 799.  
68882 Math Coprocessors ... call

## MEDIA

## ★Fuji ... 60 day MBG

2214 3 1/2" DS Disks (10) ... 9. 2242 (50) ... 32.  
2215 3 1/2" HD Disks (10) ... 15. 2241 (50) ... 59.  
4863 3 1/2" HD Disks (20) w/storage case ... 26.  
2243 3 1/2" Color (10) DS ... 10.  
2239 3 1/2" Color (10) HD ... 18.  
5348 DC2000 ... 15. 5346 DC2120 ... 21.  
5345 DG60M ... 16.

## ★Sony ... 60 day MBG

3297 3 1/2" DS Disks (10) ... 9. 6148 (30) ... 25.  
3298 3 1/2" HD Disks (10) ... 15. 6375 (30) ... 42.  
1603 DG60M ... 16. 2520 DG90M ... 22.  
8185 QD2040 ... 14. 1895 QD2120 ... 21.

## ★SyQuest ... 60 day MBG

6592 44 MB Cartridge (1) ... 69. 5529 (3) ... 199.  
5528 44 MB Cartridge (5) ... 329. 9728 (10) ... 649.



## ★SuperMac Technology ... 30 day MBG

**VideoSpigot**—Digital-video frame grabber for making QuickTime movies. Includes VHS Video Input via RCA jack.  
4164 VideoSpigot (for NuBus) ... special \$399.  
4122 VideoSpigot LC or 4114 VS IIs ... ea. 349.

3603 88 MB Cartridge (1) \$107. 3600 (3) ... \$312.  
5530 88 MB Cartridge (5) ... 512. 9728 (10) ... 999.

## ★3M ... 60 day MBG

3943 DC2000 ... 17. 6065 DC2080 ... 20.  
1581 DC2120 ... 23. 9931 DC2165 ... 32.

## ACCESSORIES

### TONERS, CASES, DUST COVERS

#### Apple Computer

9773 StyleWriter Ink Cartridge ... 22.  
7748 Personal LaserWriter Toner Cartridge ... 87.  
1115 LaserWriter II Toner Cartridge ... 105.

#### ★Avery ... 60 day MBG

7050 Avery 5660 (1" x 2 5/8" Clear Adrs.-Laser) ... 32.  
4811 Avery 5182 (8 1/2" x 11" Trans.-Laser) ... 22.  
5392 Avery 5196 (3 1/2" Disk Labels-Laser) ... 29.  
4807 Avery 5160 (1" x 2 5/8" Address-Laser) ... 24.

#### ★Basic Needs ... 60 day MBG

Full line of Dust Covers, etc. ... call

#### ★Curtis Manufacturing ... 30 day MBG

8973 Apple Security Kit (SL-2) ... 22.

#### Ergotron, Inc

Mac Tilt (Classic, SE or SE/30) ... ea. 68.

#### ★Goldstein & Blair ... 30 day MBG

8374 The Macintosh Bible (with disks) ... 25.



## Ashton-Tate/Borland

1324 **FullWrite Professional 1.0**—Incredible deal!  
Version 1.0 can be upgraded to V 1.5S (System 7 compatible) for \$49.95 + \$5 shipping & handling. Simply dial 800/331-0877 (Borland sales) & have your disk serial number handy. ... \$25.

## ★I/O Design ... 30 day MBG

Full line of Dust Covers (teal green or navy) call  
3688 Ultimate StyleWriter Case ... 49.  
8812 Ultimate Classic Carrying Case ... 64.  
3362 Ultimate SL PowerBook Case ... 64.  
3371 Ultimate EX PowerBook Case ... 75.  
1941 Ultimate LC Carrying Case ... 95.

## ★Kensington ... 30 day MBG

Full line available. Partial listing.  
4973 Power Tree 20 ... 27.  
2559 Apple Security Kit ... 33.  
9303 Keyboard Shelf ... 39.  
6763 Mac SE Anti-Glare Filter ... 52.  
3623 Apple Color 12" Anti-Glare Filter ... 63.  
5064 Apple Color 13" Anti-Glare Filter ... 63.  
1118 Compact PowerBook Case ... 49.  
1092 Deluxe PowerBook Case ... 79.

## ★MacConnection ... 60 day MBG

1505 Solid Oak Disk Case (36) ... 21. 4623 (90) ... 32.

## ★Moustrak ... 60 day MBG

2694 Moustrak Pad (7" x 9") ... 8.  
2692 Moustrak Pad (9" x 11") ... 9.  
2693 Moustrak Pad Low Friction (9" x 11") ... 10.

## ★Targus ... 60 day MBG

3617 Mac Classic/SE/Plus Case ... 59.  
1305 Universal Notebook (for PowerBooks) ... 69.  
4015 Mac SE & Ext. Keyboard Case ... 75.

Includes  
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6754 **HP LaserJet III**—Exclusive Resolution Enhancement technology with 300 dpi sets a new standard. Prints up to 8 pages per minute as well as holding up to 5 MB of memory. (requires interface kit) ... \$1599.

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## ★Tripp Lite ... 30 day MBG

3350 MacDirector ... 72.

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| 6514 | HP B&W DeskWriter (w/cartridge) . . .       | \$479. |
| 2964 | HP Color DeskWriter C (w/color cart.) . . . | 849.   |
| 3596 | HP ScanJet IIc (color) . . .                | 1599.  |
| 6754 | HP LaserJet III (requires kit) . . .        | 1599.  |

## ★ Kensington ... 30 day MBG

|      |                             |      |
|------|-----------------------------|------|
| 2547 | ☛ Turbo Mouse 3.0 ADB . . . | 107. |
|------|-----------------------------|------|

### Koala

|      |                                                  |      |
|------|--------------------------------------------------|------|
| 2593 | ☛ MacVision (Serial) G-Scale Digitizer 4.1 . . . | 259. |
| 2879 | ☛ MacVision (SCSI) Color Digitizer 4.1 . . .     | 499. |

### Kraft Systems

|      |                                   |     |
|------|-----------------------------------|-----|
| 6099 | Trackball (with foot pedal) . . . | 39. |
| 7519 | KM30 Trackball . . .              | 42. |

## ★ Logitech ... 30 day MBG

|      |                                          |      |
|------|------------------------------------------|------|
| 1671 | ☛ MouseMan, 77. 1672 ☛ TrackMan . . .    | 89.  |
| 5082 | ☛ ScanMan Model 32 G-Scale Scanner . . . | 299. |
| 3339 | ☛ ScanMan & Catchword . . .              | 369. |

## ★ MicroSpeed ... 30 day MBG

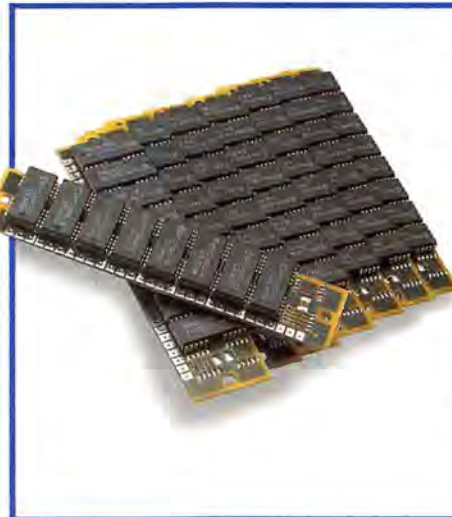
|      |                                          |     |
|------|------------------------------------------|-----|
| 2807 | ☛ MicroTRAC (for SE & II family) . . .   | 75. |
| 6621 | ☛ MacTRAC ADB 2.0 (SE & II family) . . . | 75. |

## ★ Microtek ... 30 day MBG

|      |                                |       |
|------|--------------------------------|-------|
| 1981 | ☛ MS-II OCR Scanner . . .      | 849.  |
| 1978 | ☛ Scanmaker 600GS . . .        | 849.  |
| 1985 | ☛ Scanmaker 600ZS . . .        | 1399. |
| 4505 | ☛ TrueLaser (with toner) . . . | 1399. |

### Monster Design Group

|      |                                 |      |
|------|---------------------------------|------|
| 1486 | MacSpeakers (two, stereo) . . . | 169. |
|------|---------------------------------|------|



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complex graphics with power to spare.

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|------|--------------------------------------------------|-------|
| 1107 | 1 MB SIMM (80ns) . . .                           | 36.   |
| 8316 | 1 MB SIMMs (80 ns, set of 2) . . .               | 69.   |
| 9437 | 2 MB SIMMs (for IIs or LC) . . .                 | 69.   |
| 7437 | 4 MB SIMMs (80 ns) . . .                         | 129.  |
| 7600 | 4 MB SIMMs (80 ns, set of 4) . . .               | 499.  |
|      | 16 MB SIMMs (for Quadra 700/900, set of 4) . . . | 2799. |
|      | PowerBook modules . . .                          | call  |



### Applied Engineering

2532 QuickSilver Accelerator for the IIs—Gives your  
Mac IIs speed and expandability with an SE/30  
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processor chip on board. Comes with a  
5 year warranty . . . \$299.

|      |                                         |       |
|------|-----------------------------------------|-------|
| 8361 | ☛ 1.44 MB High Density Drive . . .      | 229.  |
| 5290 | ☛ Plus Drive (FDHD for Plus & SE) . . . | 309.  |
| 3319 | TransWarp SE (25 MHz) . . .             | 799.  |
| 3317 | TransWarp SE (40 MHz) . . .             | 1479. |
| 4147 | TransWarp LC (33 MHz) . . .             | 999.  |
| 4903 | TransWarp LC (40 MHz) . . .             | 1199. |
| 2905 | Floppy Drive to Mac II Cable . . .      | 15.   |

### Computer Care

BookView Imperial (memory and video card  
for Apple's PowerBooks) . . . call  
BookRAM 2S, 4S, 6S, DRAM 4 . . . call

## ★ Dayna ... 60 day MBG

|      |                                  |      |
|------|----------------------------------|------|
| 8722 | DaynaFile II 1.2 5¼" Drive . . . | 429. |
|------|----------------------------------|------|

## ★ DayStar Digital ... 30 day MBG

Does not include optional math chip.

|      |                                                                                            |      |
|------|--------------------------------------------------------------------------------------------|------|
| 8949 | LT200 Connection (PC) 175. 8950 (MC) 279.                                                  |      |
| 3584 | DualPort IIs with 20 MHz 68882 . . .                                                       | 165. |
| 8556 | ☛ FastCache for Mac IIs . . .                                                              | 265. |
| 3401 | ☛ FastCache IIs 299. 3389 IIs w/FPU 369.                                                   |      |
| 1613 | ☛ FastCache 040 (for Quadra) . . .                                                         | 349. |
|      | PowerCache for SE/30, II, IIs, ILCx, ILCi, IIs, LC<br>40 MHz . . . 859. 50 MHz . . . 1349. |      |
|      | RAM PowerCard (various memory config.) . . .                                               | call |

### Envisio

|      |                                           |       |
|------|-------------------------------------------|-------|
| 1819 | Notebook Display Adaptor (1 MB) . . .     | 549.  |
| 1812 | (2 MB) . . . 699. 1842 (4 MB) . . .       | 1099. |
| 1848 | Notebook Display Adaptor 030 (1 MB) . . . | 629.  |
| 1837 | (2 MB) . . . 939. 1835 (4 MB) . . .       | 1249. |

### Dove Computer

|      |                                        |      |
|------|----------------------------------------|------|
|      | Racer 030 Plus, SE, or SE/30 . . . ea. | 399. |
| 9789 | Racer 030 for Mac II . . .             | 739. |

## ★ FWB, Inc. ... 30 day MBG

|      |                                            |       |
|------|--------------------------------------------|-------|
| 2320 | HammerDisk44 (removable) . . .             | 739.  |
| 1802 | HammerDisk88 (removable) . . .             | 949.  |
| 2331 | PocketHammer 50 . . .                      | 569.  |
| 2329 | PH 100 . . . 749. 2314 PH 200 . . .        | 1199. |
| 1801 | Hammer300 . . . 1899. 1803 PH 425 . . .    | 1999. |
| 2333 | Hammer Internal 100is 599. 2334 200is 999. |       |
| 1795 | 300is . . . 1699. 1794 425is . . .         | 1799. |

### IOmega

|      |                                                 |      |
|------|-------------------------------------------------|------|
| 2224 | 90 MB Transportable (reqs. interface) . . .     | 799. |
| 2467 | 90 MB Gold Std. Rem. Cart. (Qty. 3) . . .       | 439. |
| 7789 | ☛ Mac 1B Interface (w/Central Pt. Backup) . . . | 39.  |
| 2466 | ☛ Mac 2B Interface (w/Retrospect) . . .         | 99.  |

### MASS Microsystems

|      |                                             |       |
|------|---------------------------------------------|-------|
| 2605 | DataPak 45 . . . 649. 2599 DataPak 88 . . . | 849.  |
| 2973 | Diamond 120 MB Hard Drive . . .             | 639.  |
| 2972 | Diamond 210 MB Hard Drive . . .             | 1049. |
| 2969 | Diamond 320 MB Hard Drive . . .             | 1699. |
| 2952 | Diamond 510 MB Hard Drive . . .             | 2149. |
| 3677 | 2" Diamond 80 MB Portable Drive . . .       | 689.  |
| 3678 | 2" Diamond 120 MB Portable Drive . . .      | 569.  |
| 3663 | 2" Diamond 210 MB Portable Drive . . .      | 979.  |
| 3662 | 2" Diamond 320 MB Portable Drive . . .      | 1549. |
| 3659 | 2" Diamond 510 MB Portable Drive . . .      | 1999. |
| 3657 | HitchHiker Portable Drive (40 MB) . . .     | 519.  |
| 3656 | HitchHiker Portable Drive (80 MB) . . .     | 689.  |

## ★ MDS Drives ... 60 day MBG

|      |                                                   |      |
|------|---------------------------------------------------|------|
| 5533 | MDS 44 SyQuest w/AutoDoubler . . .                | 499. |
| 5532 | MDS 44 SyQuest w/Norton Utilities . . .           | 499. |
| 5534 | MDS 88 SyQuest w/AutoDoubler . . .                | 599. |
| 5535 | MDS 88 SyQuest w/Norton Utilities . . .           | 599. |
| 5529 | 44 MB Cart. (3 pak) . . . 199. 5528 (5 pak) . . . | 329. |
| 5531 | 88 MB Cart. (3 pak) . . . 312. 5530 (5 pak) . . . | 512. |

## ★ Micron ... 30 day MBG

|      |                                              |      |
|------|----------------------------------------------|------|
| 7149 | ☛ Xceed ILCi-128K Cache Card . . .           | 239. |
| 2262 | Xceed Color 30 Card (SE/30) . . .            | 279. |
| 2260 | Xceed Gray-Scale 30 Adapter Card . . .       | 75.  |
| 3668 | Xceed Macro Color 30 24-bit Video Card . . . | 489. |

### Peripheral Land, Inc. (PLI)

|      |                                                 |       |
|------|-------------------------------------------------|-------|
| 1866 | Quick SCSI Card (requires cable) . . .          | 319.  |
| 8335 | PLI TurboFloppy 1.4 . . .                       | 295.  |
| 8327 | PLI Infinity 40 Turbo (removable) . . .         | 599.  |
| 9752 | PLI Infinity 88 Turbo (removable) . . .         | 779.  |
| 2325 | PLI Infinity Optical Drive . . .                | 3199. |
| 4645 | PLI Infinity MO 3.5" Optical Drive . . .        | 1699. |
| 2864 | PLI Infinity Floptical Drive (21 MB) . . .      | 559.  |
| 2865 | Floptical Cart. (21 MB) 35. 2899 (10 pak) . . . | 299.  |
| 2644 | Quantum 52 MB External Hard Drive . . .         | 479.  |
| 3682 | Quantum 240 MB External Hard Drive . . .        | 999.  |
| 8330 | PLI 105 MB . . .                                | 619.  |
| 2327 | PLI 2GB DAT Drive . . .                         | 1939. |

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| 7437 | 4 MB SIMMs (80ns) . . .           | 129. |
| 7600 | 4 MB SIMMs (80ns, set of 2) . . . | 499. |
|      | PowerBook modules . . .           | call |

## ★ Applied Engineering ... 30 day MBG

|      |                                           |      |
|------|-------------------------------------------|------|
| 2532 | QuickSilver Accelerator for the IIs . . . | 299. |
| 1971 | FastMath LC . . .                         | 139. |



### Logiccode Technology

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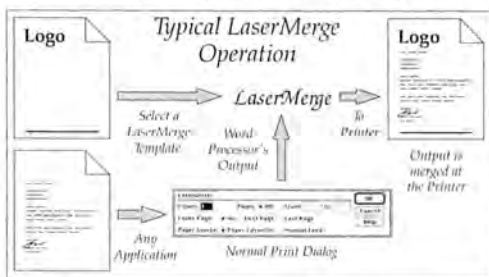
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*LaserMerge* works with *LaserWriter*, other PostScript printers, and with *ImageWriter II* printers, on Macintosh Plus and up, and with all applications using the standard print manager. *LaserMerge* and the *LaserMerge* logo are trademarks of MindGate. Suggested list price \$129.00.



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## NEW ON THE MENU REVIEWS

### FILE & DISK MANAGEMENT

## Tiles

**Tiles may be eye-catching, but it's not the best choice for reorganizing your desktop.**

*Tiles* is a Finder-enhancement utility designed to keep files and applications at your fingertips. It's aimed not only at novice users puzzled by the intricacies of hierarchical disk management but also at experienced users who want to bypass the Finder for a more direct route to files and applications. But despite its well-designed interface, *Tiles* doesn't measure up when compared with similar utilities, including the Finder itself, which are simpler and less costly.

### File Cabinets and Drawers

*Tiles* uses a file-cabinet metaphor to organize files and applications. The file cabinet contains two drawers, one for applications and another for projects. When you open a drawer, the program displays a palette comprising small iconlike squares called tiles, which can represent files, applications, or projects. When you double-click on an application tile, for example, the program launches the application linked to that tile. Option-clicking on a tile opens another palette composed of documents that can be opened with the application. Clicking on a document tile opens the document and its originating application.

You can create tiles manually, or you can set *Tiles* to automatically create them as you open applications and documents. This auto-create feature works even when the *Tiles* application is closed. To control

the proliferation of tiles, you can set the program to automatically delete tiles that haven't been used regularly and delete tiles that exceed a maximum number that you've specified. If you want to prevent specific tiles from being deleted, you can "pin" them to a palette to preserve them. Unfortunately for users who want a consistent desktop arrangement, *Tiles*' deletion scheme can drastically alter the desktop's appearance over time.

*Tiles* also lets you use CE Software's *QuickKeys* from the Application palette, so you can create tiles that launch macros. *Tiles*' Project Drawer palette contains tiles that represent various combinations of applications, documents, and *QuickKeys* tiles. Using the Gather command, for example, you can create a project that comprises all currently open applications and documents. You can also create project tiles manually and edit their contents at any time. If you build a sequence of application and *QuickKeys* tiles, a project can become a megamacro. For example, one project can open two separate documents, transfer data between them, and print the results. You can set the program to launch a specified set of files at startup, by either manually defining a startup set or requesting *Tiles* to launch the files that were open when you shut the Mac down.

This sounds handy, but it's far from unique. To begin with, application and document tiles are almost functionally



*Tiles* uses a file-cabinet metaphor to simplify the task of organizing files and applications. Despite its attractive interface, *Tiles* doesn't compare well with similar utilities, which offer features that consume less memory and are less expensive.



equivalent to System 7's aliases — you may find aliases to be an adequate substitute for Tiles. Tiles also has a fairly high overhead for a utility: It requires more than 600K of RAM.

Although aliases can't match Tiles' auto-create feature, other utilities can. Super Boomerang (part of Now Utilities) originated the auto-create idea. Microseeds Publishing's HAM has a similar capability as well as a feature that resembles Tiles' projects. Connectix's HAND-Off II uses a briefcase metaphor that's also similar to Tiles' projects. Moreover, these programs are often simpler to use than Tiles.

Tiles is unique in its ability to interact with QuicKeys, although you must purchase QuicKeys separately. Moreover, a QuicKeys tile doesn't do anything more than QuicKeys itself does. With QuicKeys' sequence macros, for example, you can duplicate everything a project tile accomplishes. The only difference is that for inexperienced users, it's a bit easier to set up the sequence in Tiles.

#### The Bottom Line

Using Tiles may be a good way for novice Mac users to set up special tasks. Users don't have to know or remember the whereabouts of files and applications — they can just double-click on project tiles. Additionally, if you don't plan to upgrade to System 7, Tiles can provide many of the same advantages as System 7 aliases.

Almost everything that Tiles does, however, can be duplicated by other utilities for less money, hassle, and overhead. We prefer the combination of System 7's Finder with either HAM or Super Boomerang. Moreover, even though Tiles' interaction with QuicKeys may initially seem to be an asset, the combination doesn't offer much more than what you get with QuicKeys alone.

— Ted Landau

## Get Info

### Tiles

\*\*\*

**Published by:** CE Software, Inc.,  
P.O. Box 65580, West Des  
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## NEW ON THE MENU

## REVIEWS

## GROUPWARE

## PacerForum

**Pacer Software delivers a graphical bulletin-board system for LANs.**

PacerForum is a graphical bulletin-board system for your Mac LAN. For those who have a large networked organization that's spread out over a wide area, PacerForum provides a convenient way to exchange ideas, files, graphics, and voice messages. It differs from E-mail in its basic architecture: Rather than E-mail systems' one-to-many structure of server to clients, PacerForum is a centralized system built on a many-to-one structure.

## Graphical Bulletin Boards

PacerForum's highly graphical, well-designed interface makes the program easy for novices to use. To begin using the program, you select a Forum server from the Chooser and then access PacerForum as a DA on the Apple menu. When you first log on, the Forum server window displays descriptively named icons for every bulletin board on the forum.

PacerForum's flexibility lets users customize the system in a variety of ways. You can resize the Forum window, for example, and assign interest levels to each bulletin board. Assigning a high interest level to a bulletin board prompts PacerForum to notify you with a pop-up window each time the bulletin board's information changes. Flashing icons signal changes to less significant bulletin boards.

Bulletin boards are structured hierarchically. When you open a bulletin board by clicking on its icon in the Forum window, all the topic icons for that board appear. Clicking on a topic icon opens another window that contains responses on that topic, along with the responders' name, date, and time of response.

You have several options for navigating through the list of responses: You can simply scroll through the list, use a Go To button to select a specific number, or click on a Find button to search for a particular text string. Although you can delete responses and move topics and their responses from one bulletin board to another, you can't edit the responses. You also can't sort, group, or filter re-

sponses by name or subject, nor can you prioritize or move them within the response window. Text formatting is equally rigid: You're limited to style changes and three point sizes (9, 12, and 18), but you can highlight text in red.

PacerForum lets you attach pictures, sounds, or files to any response. Sounds and images can be copied from the Clipboard or from the Scrapbook under System 7. If you're using System 7, you can open an enclosed file from within PacerForum if you have the originating application on your hard disk.

## Administration and Maintenance

PacerForum's server software installs easily with the Apple Installer. A sample database of bulletin boards, topics, and icons gets you off to a fast start. At least 2 megabytes of memory is recommended for the server, but you'll need more if the server is also running an E-mail program or AppleShare, especially under System 7. You can manage with a 1-megabyte Mac Plus running System 6.0.4 or later if it's dedicated as a PacerForum server.

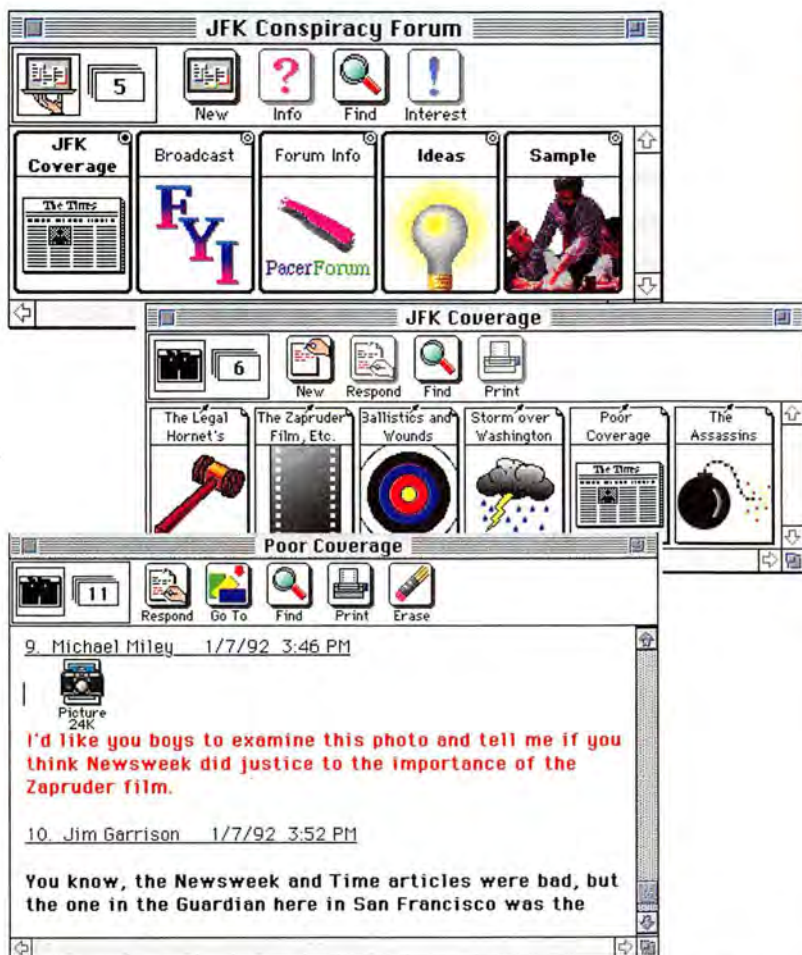
Once you've installed PacerForum, you can administer its servers from any Mac on your LAN. The administrator is responsible for setting up the database—registering the server for the number of licensed users, building the list of users and groups (you can import and export names and groups), and maintaining the database of icons and bulletin boards. You can import and export icons as well as name lists and groups among servers, but you must do so manually, because PacerForum lacks automatic server-to-server communication. On an internet with several forums, users can select the forum server they want from the Chooser.

Administrators can control user privileges such as read- and write-only access and can also create icons and set up new bulletin boards, topics, and responses.

## The Bottom Line

For those who are interested in building a LAN-based bulletin-board system, PacerForum is a solid offering that's well





PacerForum lets you set up hierarchically structured LAN-based bulletin-board systems. The program features an excellent graphical interface, and users can attach pictures, sounds, and files to posted messages.

worth considering. A key strength is its interface, which is more graphical and intuitive than that of products such as MacVONK's InForum or Softarc's First Class. Its ability to incorporate graphics and sounds with messages is also a plus.

Although PacerForum is easy to use and maintain, its first iteration does have some limitations. The program's response-handling system lacks filters as well as the ability to group and sort responses (Pacer claims that sorts and filters will be included in the next revision). In addition, PacerForum has no real-time conferencing, no server-to-server communication or name propagation for LANs or WANs, and no communications and routing intelligence for linking to public bulletin-board services.

These omissions aside, PacerForum is quite useful. If you need groupware for

file sharing, in/out boards for personnel tracking, an electronic voting booth for proposals, a posting place for software, a lounging area for office chatting, or a straightforward brainstorming forum, PacerForum may be just the ticket.

— Michael Miley

## Get Info

### PacerForum

\$\$\$½

**Published by:** Pacer Software, Inc., 7911 Herschel Avenue, Suite 402, La Jolla, CA 92037; (619) 454-0565.

**Version:** 1.0.

**List Price:** 5 users, \$549; 25 users, \$1,995.

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### NEW ON THE MENU

## REVIEWS

### PROGRAMMING & SYSTEMS

## Cause

**Pluma's codeless approach to database development may be tailored for cross-platform compatibility, but it won't fit Mac users well.**

Cause is to object-oriented programming what the first portable Mac was to portable computing — right idea, flawed implementation. Designed to let users develop their own cross-platform database applications without using a programming language, Cause frees users from the complexities of working with source code. However, applications developed with Cause lack essential Mac interface elements and the program's graphical step-by-step development process can be tedious, particularly for complex applications.

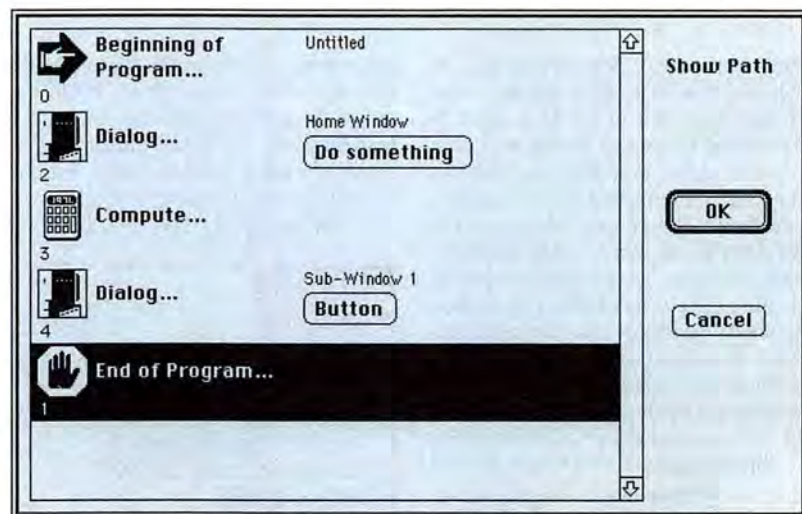
### Point-and-Click Construction

With Cause, you construct applications graphically by pointing and clicking on interface resources, such as buttons, and connecting them to a series of tasks, such as calculations (called steps). The program comprises two modules: a run-time engine for distributing the applications you create and a set of design tools for building and compiling applications. To build networked applications, you need a

special version of the Cause engine.

To create an application, you first create the resources that users interact with — windows with buttons, scroll boxes, files, and reports. Then you define the steps that use the resources for data-entry, reporting, and searching purposes. To modify applications, you "trace" through the steps graphically. By default, Cause moves you through the steps sequentially, but you can switch to Simulation mode and skip around as your application becomes more complex.

One of Cause's problems, however, is that it gives little navigational feedback to developers during the construction process. Unlike with traditional programming languages, there's no text record that details an application's structure. Moreover, in contrast to the approach of programming languages, which excel at representing complex logical operations in compact format, Cause's step-by-step graphical approach can quickly become inefficient and downright unwieldy for large applications.



Cause lets you develop database applications graphically, without programming. However, its step-by-step point-and-click approach is tedious for building complex applications and you can't incorporate standard Mac menu bars and pop-up menus.





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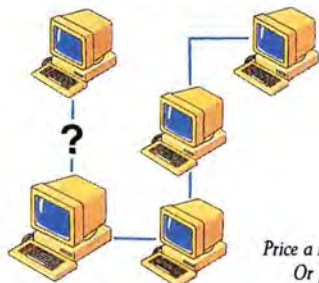


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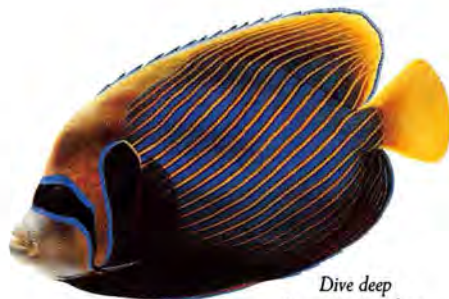
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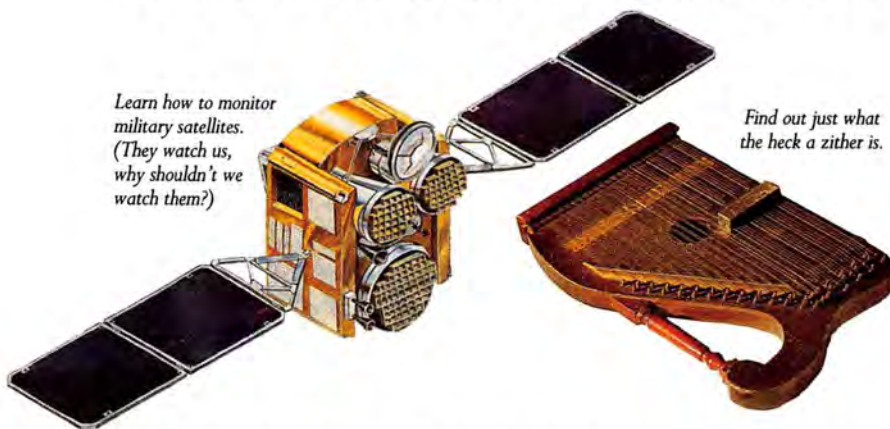
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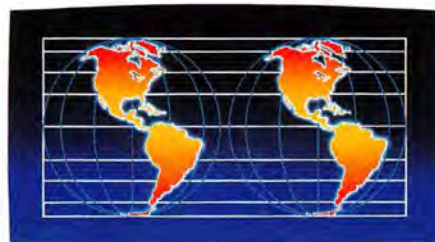


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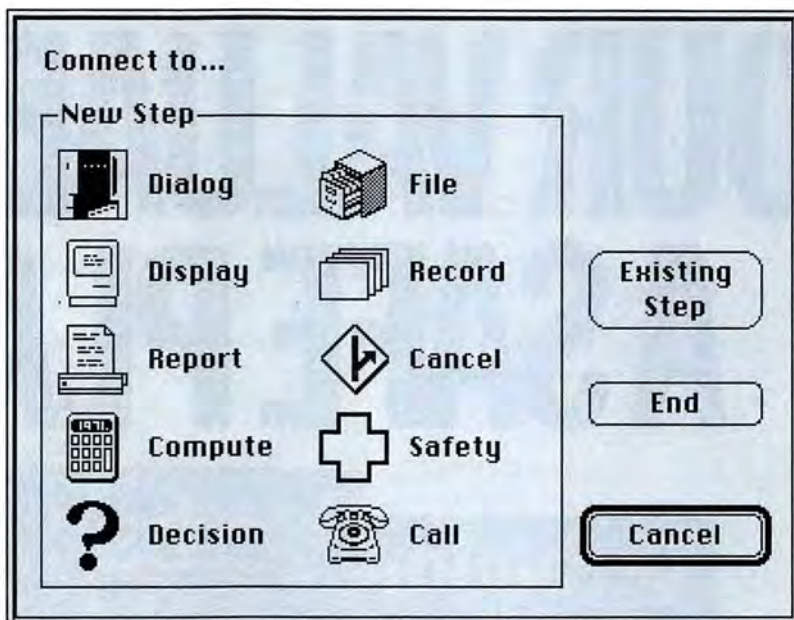
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### Mac and DOS Intermingled

Given Cause's lack of feedback, you'll want to do a lot of planning on paper before you start developing an application. For the planning stage, the tutorial contains many flowcharts that illustrate ways to connect application steps, but references to the Mac and the DOS versions of the program are intermingled, making it difficult at times to focus on a particular subject. In fact, Pluma packages the Mac and the DOS versions in the same box, and Mac users will be disappointed to find that most of the documentation's illustrations come from DOS screens.

Another serious drawback to creating Mac applications with Cause is its lack of support for menu bars and pop-up menus. As an alternative, the tutorial teaches you to develop applications that use layers of windows with buttons as navigational elements, an approach that's too limiting for complex applications. However, because buttons are the least common denominator between DOS and



Cause applications are constructed by connecting the steps shown here to interface elements such as windows and buttons.

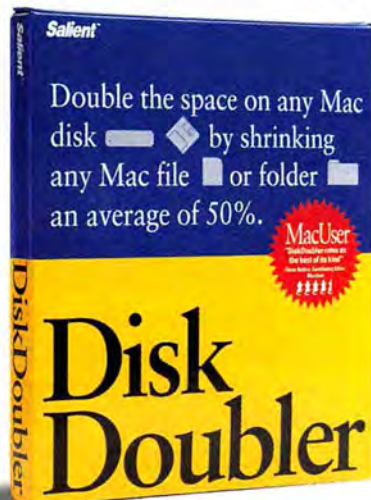
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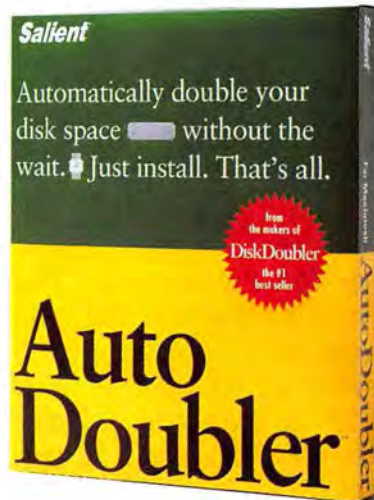
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Mac applications, Pluma used them for Cause's cross-platform design. Unfortunately, they make it difficult for developers and users who rely on standard Mac interface conventions.

In addition, Cause provides few graphical editors — a graphical map of step connections is a particularly glaring omission. Moreover, Cause has relational capabilities, but it's easy to lose track of them, because relationships among fields aren't represented graphically.

The window editor is probably the most graphical Cause tool, but it's extremely limited compared with the editors in FileMaker Pro, HyperCard, and high-end database programs such as 4th Dimension. You can use this editor to create check boxes and radio, push, and text buttons. Two types of scroll boxes are available for displaying lists of data, and you can add lines, rectangles, and rounded rectangles to refine the look of an application's interface. However, the process of creating interface elements can be frustrating. Objects are constrained by

an invisible grid that you can't turn off or adjust. You enlarge the size of buttons by padding button text with spaces, but the button text is not self-centering.


When running sample Cause applications, we noted several annoying idiosyncrasies. When you click on a Cause button, you're committed to activating it, whereas in most other Mac applications, you can avoid activating a button you've clicked on by dragging away from it before releasing the mouse button. In addition, Cause makes it possible to create windows with ineffectual close boxes, and although windows are equipped with title bars, you can't move them by dragging.

#### The Bottom Line

Object-oriented programming is a concept that is attracting a lot of attention these days. That's not surprising, because many users long for an application tool that can liberate them from programming. However, Cause's approach leaves much to be desired. Its inefficient

approach can lead to unwieldy results for large applications, and it doesn't provide any feedback about an application unless you step through it graphically — a tedious process. In addition, the program's cross-platform goal turns out to be a major stumbling block for Mac users, because conventional Mac interface elements such as menu bars and pop-up menus aren't supported.

The germ of a good idea exists in Cause, but it's not a useful tool in its current incarnation.

— Louis E. Benjamin, Jr. 

### Get Info

#### Cause



**Published by:** Pluma, Inc., 116 E. Greenway, #101, Mesa, AZ 85203; (602) 969-9441.

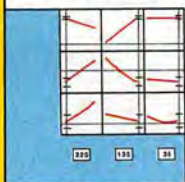
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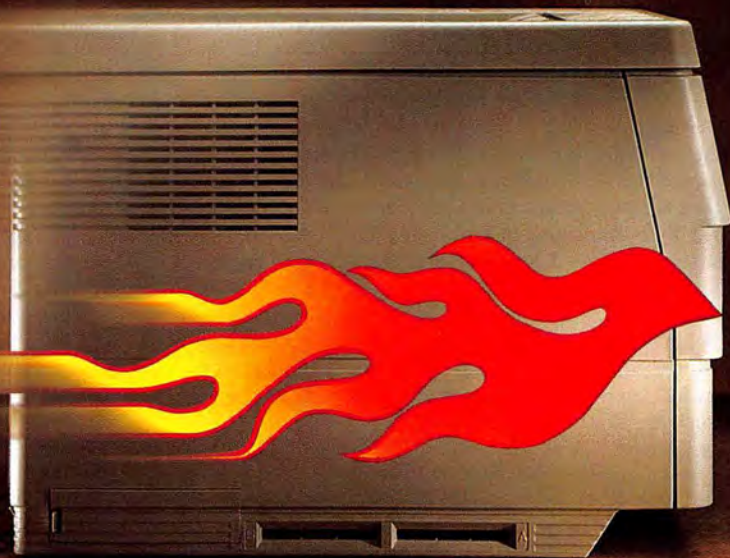


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## QUICK CLICKS



## Ft. Knox



Ft. Knox is Spy-vs-Spy security software. Providing data-eradication and -encryption tools plus a small set of file utilities, Ft. Knox is ideal for classified government environments, high-level corporate and industrial research facilities, and other organizations that require stringent security.

What sets Ft. Knox apart from more-mundane security products is its ability to clear nonvolatile memory, called PRAM in Macs and EEROM or ZPRAM in LaserWriter printers. By obliterating all recently used or created data in these systems, Fort Knox ensures that even the most ingenious hacker will come away from your site empty-handed.

Ft. Knox also provides three options to help you erase data files. The Delete command simply removes files from directories, but you can still recover them with a disk utility such as Norton Utilities for the Mac. The Overwrite command obliterates selected files with a 16-bit random pattern, which does a pretty complete job of destroying data, although some fragments might still remain for potential recovery.

The third option, Sanitize, is what gives Ft. Knox its reputation for overkill. It overwrites files with a 16-bit random pattern, overwrites them again with an opposite pattern, repeats the process two more times, and then verifies the results. This measure is designed to meet DOD Top Secret-level requirements for declassifying magnetic media.

Like other security packages, Ft. Knox offers encryption of files with DES (the U.S. government's Data Encryption Standard) as well as its own OnesCrypt system, so users have two good choices for password-protecting sensitive files.

Another feature, called Edit Herald, lets you alter the friendly Welcome to Macintosh box: The Ft. Knox manual recommends changing the text to Unauthorized Access Prohibited. The package also includes a small set of basic disk utilities. With the exception of the Edit Herald feature, Ft. Knox is System 7-compatible.

Overall, Ft. Knox provides an easy way to perform some very sophisticated tasks. All of the 125K application's functions

are accessible via simple menu commands, and the 30-page manual offers a solid explanation of how the program works. Although Ft. Knox goes far beyond what's needed for most users and businesses, it can certainly hold the fort when it comes to supersensitive, classified data.

Transfinite Systems Co., Inc., P.O. Box N, MIT Branch Post Office, Cambridge, MA 02139; (617) 969-9570. Version 1.0.5. \$195.

—Tom Petaccia



## Publish It!

## Easy



Publish It! Easy, Timeworks' powerful and affordable page-layout program, just acquired a database module and a face-lift with its latest release.

The database module lets users manage and merge data (addresses, customer lists, and the like) into layouts from within Publish It! Easy. To do so, you open the File-It! module from the program's Special menu and create a data file by defining fields. The process is nearly identical to that of creating a flat-file database, using a dedicated database program.

Once you've created a data file, you can insert fields into a layout and merge the data (or selected subsets of it) into the fields. If you've ever done mail-merge in a word processor, you'll feel right at home.

File-It! supports sorts and some automatic formatting of data in fields, such as addition of dollar signs to currency fields, date and time formatting, and case conversion. Fields can also contain formulas, just as they can in spreadsheet or database programs.

Although File-It!'s functionality is impressive, its most powerful aspect, the formula language, is not well documented. We were often not only puzzled but also downright thwarted as we tried to create formulas. The program's cryptic error messages made things worse. Better documentation is a must in this area.

In addition to File-It!, the new release features some enhanced tools and a general tweaking of the interface. An editable user dictionary provides the option of dictionary-based hyphenation. The thesaurus function includes new options for looking up synonyms and antonyms as well as the ability to define selected words and specify the part of speech.

It's also noteworthy that Publish It! Easy's system and hardware requirements remain remarkably undemanding, despite the program's enhancements. You need a Mac Plus or better, System 4.2 or later, and at least one 800K floppy drive. The program is System 7-compatible and supports Balloon Help and the ability to subscribe to external files in RTF, ASCII, or PICT formats (System 7's Publish feature is not supported).

Publish It! Easy remains the top-of-the-line DTP program for beginning to midlevel users. However, you should be prepared for some guesswork if you want to construct formulas in the File-It! database module. Our advice is to stick with the mailing-label formulas and layouts that come with the program until Timeworks improves this feature's documentation, which it promises to do in a future release.

A network-ready version was released as this review went to press.

Timeworks, Inc., 625 Academy Drive, Northbrook, IL 60062; (708) 559-1310. Version 2.1.8. \$249.95.

—Gregory Wasson



## Crash Barrier



Few Mac-related disasters strike more terror into users' hearts than the system-error dialog box. Because the Resume button is usually unavailable, the only thing to do is click on Restart, which trashes your unsaved work, including the contents of the Clipboard — not a pretty sight. Luckily, Casady & Greene has come up with a safety net that can save most, if not all, of your work; it works for about half the system crashes you're likely to encounter.

Crash Barrier is a control panel that lets you recover from a variety of crashes without having to restart. It also minimizes data loss when restarts are necessary. Although Crash Barrier doesn't work for every crash, it beats working without a safety net.

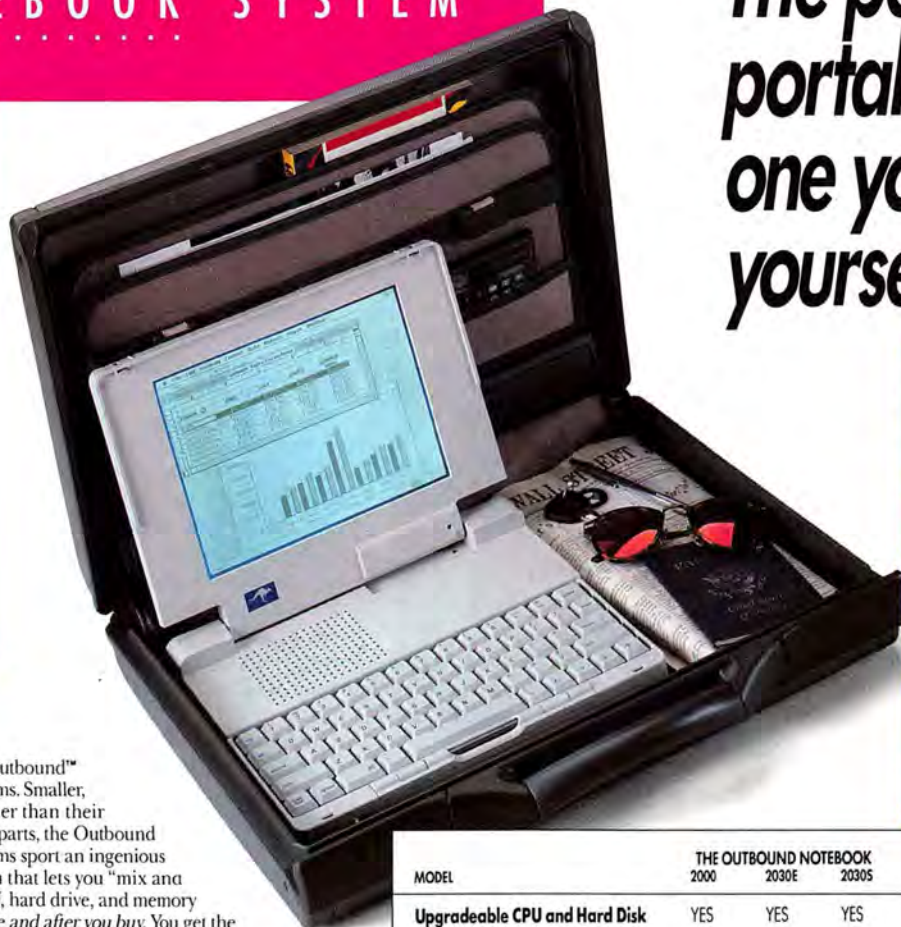
Once Crash Barrier has been installed, it displays its own dialog box, rather than the Mac's bomb dialog box, when a crash happens. This dialog box identifies the program that crashed and explains the cause in plain language. It also displays buttons that offer various routes to crash recovery.

In Crash Barrier's control panel, you



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Outbound's "mix and match" system lets you choose from two to 14 MB of RAM, a hard disk from 20 to 120 MB, and lightning speeds of 20 to 33 MHz. With any combination, you'll have all the power and memory you need for your demanding applications. Naturally, the Outbounds are equipped with all of the ports you'd expect in a Mac® a standard SCSI, communications, sound, ADB and printer. There is even a built-in microphone and speaker.

## Enjoy Mac compatibility

Your Outbound Notebook is ready for action the minute you unpack the box, because the Macintosh ROM is already installed for compatibility with the thousands of Macintosh applications. Systems come with the memory conscious System 6.0.7 installed, and are completely compatible with System 7. And of course, all models include an internal SuperDrive™ equivalent 3½" floppy disk drive for working with high and low density Mac and MS-DOS diskettes.

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Small enough to fit in most briefcases, all models measure 8.5 x 11 x 2.1 inches, weigh only 6.25 pounds, and boast a full-size, silent keyboard. In tight quarters, use the keyboard mounted TrackBar™ to point and click. Or, add a mouse or other ADB pointing device. The backlit LCD screen is large and easy to read, and provides 17% more displayable area than the Apple PowerBook™ screens.

Notebook prices based on direct sales. PowerBook prices reflect published Apple retail pricing. Technical specifications and prices subject to change without notice. The Outbound name, logo and TrackBar are trademarks of Outbound Systems, Inc. Apple, Macintosh and Mac are registered trademarks of Apple Computer, Inc. PowerBook and Apple SuperDrive are trademarks of Apple Computer, Inc. All other brand and product names mentioned herein are trademarks or registered trademarks of their respective holders.

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"For me, the Outbound Notebook is the better choice." BYTE Magazine

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|--------------------------------------------------|-----------------------|---------------------|---------------------|-------------------------------|-------------------|-------------------|
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| Upgradeable CPU and Hard Disk                    | YES                   | YES                 | YES                 | No                            | No                | No                |
| Internal Floppy Standard                         | YES                   | YES                 | YES                 | No                            | Yes               | Yes               |
| Processor Speed                                  | 20MHz                 | 25MHz               | 33MHz               | 16MHz                         | 16MHz             | 25MHz             |
| Maximum Hard Drive Available                     | 120MB                 | 120MB               | 120MB               | 20MB                          | 40MB              | 40MB              |
| Full Size Silent Keyboard and True Notebook Size | YES                   | YES                 | YES                 | No                            | No                | No                |
| Maximum RAM Available                            | 4MB                   | 14MB                | 14MB                | 8MB                           | 8MB               | 8MB               |
| Math Coprocessor                                 | No                    | Optional            | Optional            | No                            | No                | Yes               |
| Maximum Silicon Disk Memory (RAM) Available      | 12MB                  | 50MB                | 50MB                | 6MB                           | 6MB               | 6MB               |
| Price                                            | 2000/220<br>\$1999    | 2030E/220<br>\$2499 | 2030S/440<br>\$3899 | 100/220 Ext.<br>Floppy \$2199 | 140/220<br>\$2899 | 170/440<br>\$4599 |

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can choose between Beginner and Expert modes. If you select Expert, you'll see seven buttons at crash time: Fix it, Continue, Resume, Reenter, Un-hang, Restart, and Quit. If you select Beginner, there are only three buttons: Fix it, Restart, and Quit.

You really have to be a programmer to use the Continue, Resume, Reenter, and Un-hang buttons. The Fix it button in Beginner mode, which uses a combination of the four Expert buttons listed above, can do the job for most recoveries.

The Quit button, available from both modes, attempts to quit to the desktop from the application that crashed. Although unsaved work from that application will be lost, you can still continue working in other currently running applications. If the cursor freezes, Crash Barrier will attempt to unfreeze it. Failing that, it provides keyboard command equivalents for each of its buttons.

Crash Barrier also provides a sophisticated auto-save routine that you can set for a specified time period or for any number of keystrokes and/or mouse clicks. The program also monitors the System heap, alerts you when it's too small, and provides a way to adjust its size.

Should you buy Crash Barrier? Considering that it's one of the best ways to avoid losing unsaved work after a crash and that the only alternative is the heartless Restart button in the bomb dialog box, the decision's a no-brainer.

Casady & Greene, Inc., 22734 Portola Drive, Salinas, CA 93908; (408) 484-9228. Version 1.0.1. \$79.95.

— Darryl Lewis



Vellum 3D is the long-awaited encore to Vellum, the 2-D-CAD program that pioneered the intelligent cursor. The intelligent cursor, called the Z-Drafting Assistant, is a tool that provides continuous feedback about the current cursor location and its geometric significance. Ashlar has now applied this innovative technology to the difficult task of 3-D modeling.

Unlike 3-D-modeling/rendering programs such as Infini-D and StrataVISION 3d, Vellum 3D is a highly accurate 3-D wire-frame-CAD program with 2-D drafting capabilities. It doesn't offer hidden-line removal, and it can't create shaded images as surface or solid modelers do.

Although Vellum is particularly well suited to mechanical design, drafting, and engineering, it can also perform architectural tasks.

In many 3-D-CAD programs, you create objects by jumping from view to view in order to specify depth or position. In Vellum 3D, the design plane is independent from the view plane. Most users will find it convenient to work in a single rotating 3-D view (isometric or trimetric) and change the active design plan as needed.

You can access different views of the model with an easy-to-use on-screen "trackball." Rotating the trackball rotates the view in real time. The redrawing process as you rotate the view can be annoyingly slow with large models or slower Macintoshes, but Vellum 3D supports the Radius QuickCAD and Rocket graphic accelerators, which can boost redraw performance.

New features in Vellum 3D include PICS-format movies, which provide animated playback of Vellum's parametric-design capability (2-D only), and a trace selection tool for selecting areas intended for cross-hatching. Vellum 3D also includes two new commands, Extrude and Revolve, for creating 3-D objects from 2-D objects. Because surfaces are not yet supported, the Revolve command creates copies of the selected profile and displays them evenly distributed around the axis of rotation.

The program requires an FPU-equipped Mac with 4 megabytes of RAM. It supports System 7 but doesn't take advantage of Balloon Help, Apple events, or publish-and-subscribe. Version 2.10 requires that Quadra users disable the 68040-specific caching, but a fix should be available by the time you read this. Because Vellum 3D relies heavily on floating-point numerics, the Quadra is likely to be the Mac of choice for users who want fast performance.

Vellum excels in producing simple objects and assemblies. The Z-Drafting Assistant can get overwhelmed on large or particularly complex projects, but you can use astute layering and zooming to minimize complexity. If you can stay within its limits, Vellum 3D is the best 3-D-CAD program available on any platform at any price.

Ashlar, Inc., 1290 Oakmead Parkway,  
Suite 218, Sunnyvale, CA 94086; (408)  
746-0749. Version 2.10. \$2,495.

—James K. Anders

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## Mutant Beach



Imagine an island of idols and mutated creatures run amok. Imagine it in gorgeous color with a pulsing reggae soundtrack (in System-7 land), and you've got Mutant Beach, a cross between an adventure game and an arcade game.

In Mutant Beach, you portray Native Nick, the guy who must save the village from the havoc wreaked by the 12 idols set loose by the Great Idol Mohawk. Mohawk's in a major snit, because his jeweled nose has been stolen. Your task is to find the purloined nose and return it before time runs out. But first you must find the Idol City, talk to the idols, and ascertain what gifts or magic spells they want — then you need to locate these items and deliver them to the proper idol.

The perils and pitfalls are many. To make things interesting, the idols have mutated most of the island's inhabitants into strange new creatures such as a frogadile, a gizmo bird, and a dancing clam. You must either avoid or "bonk" these creatures to prevent them from stealing your hard-earned gifts and spells.

You direct Nick to walk, stop, pick up, drop, duck, and bonk, using the keyboard, numeric keypad, or mouse. Status boxes at the bottom of the screen provide feedback — what spells and gifts you possess, your point score, and the time left in the game. An Ask box lets you converse with the idols. After spending several hours finding the items for each idol, you'll be able to get the nose and return it to Mohawk — if you're lucky.

Although Mutant Beach runs on any Mac starting with a Plus (it requires 2 megabytes of RAM, System 6.07 or later, and a hard drive), it's most impressive in color. Each scene is a fanciful, 256-color extravaganza, and the animation and characters are first-rate. The only aspect of the game that may irritate some players is the repetitive nature of the activities.

Whether you're an arcade-game aficionado or an adventure-game addict, Mutant Beach's puzzles, goofy mutants, and cryptic commentary, combined with its stunning graphics and sound, will give you hours of entertainment.

Inline Design, 308 Main Street, Lakeville, CT 06039; (203) 435-4995. Version 1.0.2. \$59.95.

— Bob LeVitus

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—Heidi Roizen,  
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| Spell Checker (words)            | 135,000      | 88,000   |
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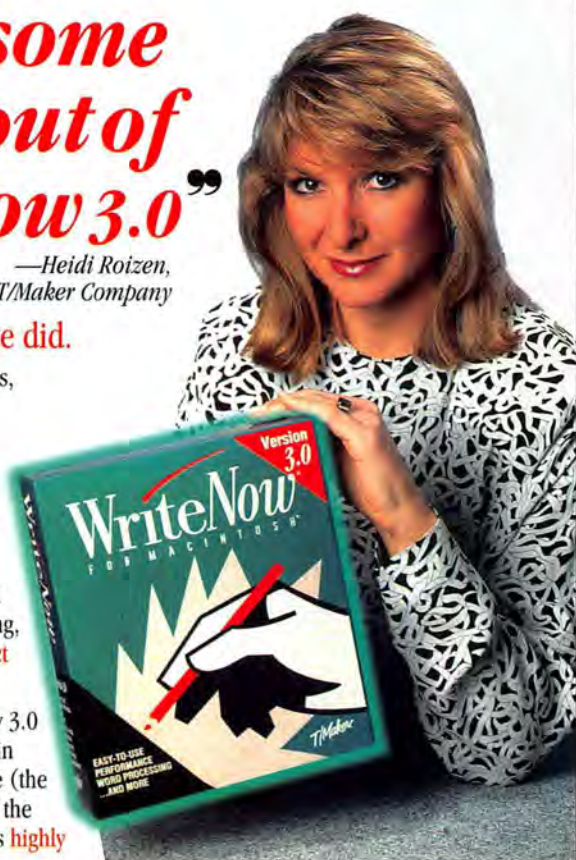
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**BUYER'S GUIDE**

# MacUser

**Business-Software**

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There's more. Our MultiSync FG monitors feature FullScan™ capability, for edge-to-edge images. And our exclusive AccuColor™ Control System lets you adjust your on-screen color to match your printed output. The MacFG™ Board is NuBus™ compatible and includes QuickDraw™ acceleration. And it's available in two versions. The MacFG 8X supports 8-bit color and the MacFG 24X supports 24-bit color.




15" MultiSync  
3FGx Monitor  
MacWorld Magazine,  
March 1992

If they don't make your eyes pop out of your head, nothing will.

For a listing of all available DPI/viewing modes and other neat stuff we didn't have room to include, call 1-800-NEC-INFO. In Canada, 1-800-343-4418. For immediate information via fax, call 1-800-366-0476, request #62234.

Once you take a look at these display systems, we're sure you'll see things our way.

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**NEC**



How to  
Succeed  
with

# Business Software

*Here's a look at 37 unique business-oriented products for the Mac  
and five commandments for business success.*

**W**hatever business you're in, it's information that keeps your business in business. Your Mac is an excellent tool for managing that information. The trick is to take the raw data that clutters your work and transform it into usable information.

Information can be organized in five ways, summed up by the acronym LATCH: location-based (spatially), alphabetically, temporally, categorically, and hierarchically. Even the Mac Finder's View menu reflects this observation: You can view files and folders by icon (spatially), by name (alphabetically), by date (temporally), by kind or by size (categorically), or by label (according to your own hierarchical definitions).

#### **LATCHing on to Information**

The major categories of business software usually impose one of these general organizational principles on your information. Word processors view the world alphabetically, database programs impose a hierarchical structure on data, spreadsheet programs let you easily sort information

by categories, E-mail programs provide real-time communication, and so forth.

Sometimes these structures leave you boxed in. You might want a hierarchical view of your word-processing data; an outliner such as Symmetry Software's Acta 7 or Attain's In Control is the solution. Your E-mail is filed in time sequence, but if you need to search your files for particular alphanumeric keywords, an all-seeing indexing utility such as On Location, from ON Technology, can be your answer.

The latest generations of the major business-software genres are also taking new approaches toward the goal of providing the answers you need, regardless of how or where the information is stored. They accomplish this goal by blurring the distinctions among the different ways of storing, accessing, and analyzing information.

For example, products such as Occam Research's MUSE, Cognos' PowerPlay, and Brio Technology's DataPivot combine the flexibility and ease of use of a spreadsheet program



**BY JON ZILBER**





with the power and data integrity of a database-management program. The newest version of Softsync's Accountant, Inc., employs Apple events to merge accounting and forms-generating capabilities. Timeslips' Timeslips III Accounting Link seamlessly integrates time-billing information with accounting records. Fair Witness, from Chena Software, blends outlining, spreadsheet, database, and project-management views of a single set of data.

The best tools complement the ones you already use. Let's take a quick tour of your office, look at your current resources, and discover some of the ways in which Mac products can enhance them. *MacUser* articles on the major business-software categories and topics are listed in the accompanying index.

### Fax Machine

T/Maker has created a handy collection of cover sheets for faxes. They were designed to add visual impact to your faxes, so they stand out at the receiving end. T/Maker's FaxMania

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## Business Software

collection of more than 80 pieces of clip art (provided in several file formats) includes a cover sheet for every occasion and purpose: humorous ("A Fax Called Wanda"), urgent ("Yo! Fax me back or else"), official ("A fax from your constituency"), or friendly ("Just the fax, ma'am").

In addition to the cost of the software, there's another price you'll pay: Artwork can add significantly to fax-transmission time, resulting in more-expensive faxing. But if your faxes are getting lost in the shuffle, it's a trade-off worth making.

### In Box

Office-efficiency experts are paid handsomely for telling companies something that's probably all-too-painfully obvious: Never let desks get swamped with paper. The key is to take action on every piece of paper the moment it arrives.

One thing that can help is OCR (optical character recognition). Caere's Typist puts the power of OCR at your fingertips — in a hand-held scanner — without taking up valuable desk-top space.

### Out Box

Even a simple business letter can consume far too much time as you struggle for the right words to make your message correctly balance urgency and diplomacy. If you're a believer in reinventing the wheel, you can compose your letters from scratch. But if you're more concerned with efficiency than with the originality or literary merits of your correspondence, consider one of several packages of "canned" letters you can customize.

Correct Letters, based on *The American Handbook of Business Letters*, is part of WordStar's newly acquired line of writing tools. It includes more than 250 business-letter templates; an on-line letter selector to help you find the most appropriate template; and an on-line guide to letter writing, which offers formatting, structure, and usage tips. (WordStar's Correct Quotes, a library of 5,000 all-

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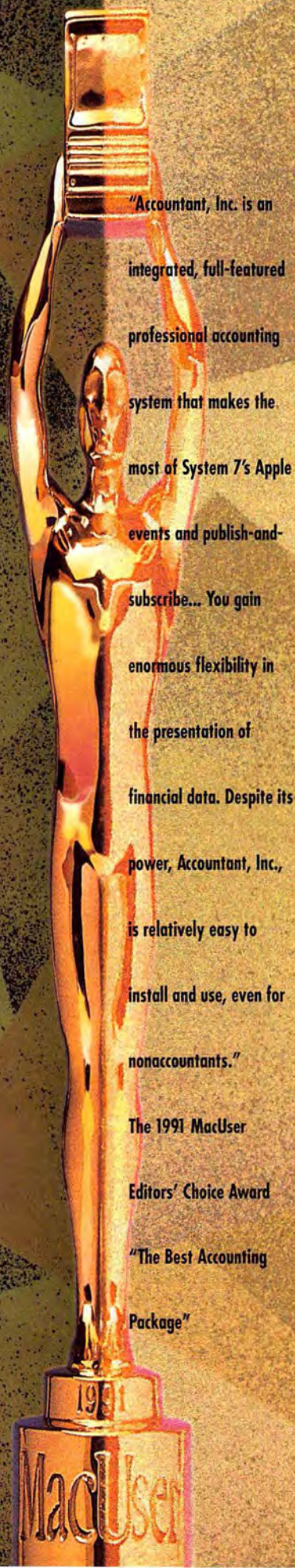
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subscribe... You gain  
enormous flexibility in  
the presentation of  
financial data. Despite its  
power, Accountant, Inc.,  
is relatively easy to  
install and use, even for  
nonaccountants."

The 1991 MacUser

Editors' Choice Award

"The Best Accounting

Package"



## Business Software

occasion quotations can help you add a distinctive flavor to all of your correspondence.)

Round Lake Publishing's LetterWorks, Legal LetterWorks, and Professional LetterWorks offer hundreds of templates for, respectively, general business correspondence; legal forms and agreements; and such marketing-oriented items as advertisements, in-house announcements, new-client welcome letters, and speeches and interviews. The accompanying manuals include printed versions of each document and show you how to fill in the specifics. Although these packages lack attention to detail — the printed templates don't match up line break for line break with their electronic counterparts and the files are numbered, rather than meaningfully named, for example — they can be real time-savers.

Another collection of legal documents called The Desktop Lawyer Software, from The Open University, lacks the blank-by-blank explanation of the missing details but offers better information than does Legal LetterWorks on when to use each of its more than 300 documents. It provides handy checklists that walk you through all the steps involved in executing a document (for example, where and how to register a transaction, what fees you might need to pay, when and why to open an escrow account, and so on).

A unique product that can speed up letter writing without sacrificing the personal touch is Letter Ideas, from ia Software. Letter Ideas provides an outline structure for a variety of letters and provides phrase-by-phrase pop-up options for each of the main bulleted points, which you can copy and paste into a word-processing document. In other words, you can mix and match phrases to fine-tune the tone of your salutation, description of the situation at hand, request for action, and so on. The thorough manual not only articulates the importance of communicating subtle differences between seemingly similar wordings

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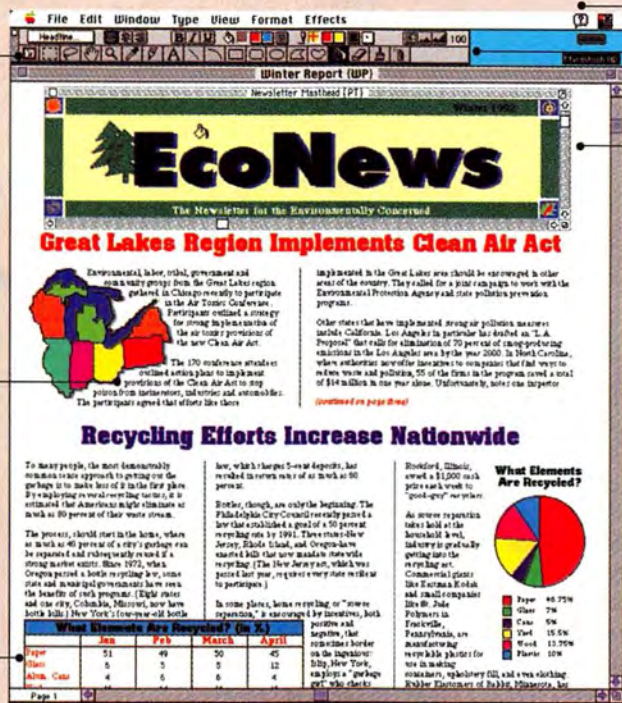
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The Frame tool enables you to create any type of new file from within your current document.

Irregular text wrap allows text to automatically take on the shape of a graphic in the word processor.

Custom styles can be applied to any font within any cell.



Balloon Help is supported with more than 1,000 balloon windows.

The tool palette is common to all modules with buttons specific to the active module.

In-Context Editing allows editing of one document from within another by simply double-clicking on the item to be changed.

## Finally, an integrated software program you won't outgrow!

### Powerful Features

Now you can have it all! Seven modules, powerful features and true integration in one software application. You don't have to settle for basic features and modules that aren't linked. Some software companies even try to sell you their integrated software program on the premise that it's easy to move up to their expensive stand alone programs. With BeagleWorks you don't need to move anywhere. All this in a package that's easy to use. Whether you're a novice or an expert you won't outgrow it's capabilities.

### In-Context Editing & System 7 Savvy

Not only do you get Word Processor, Spreadsheet, Charting, Database, Draw, Paint and Communications modules, but BeagleWorks gives you the ability to easily link documents and combine or create information from any module into a single document. Then make changes without leaving that document. We call this In-Context Editing™, which combined with Publish and Subscribe, makes changing a linked item as easy as double clicking. You can do all this without ever leaving the module in which you are working.

BeagleWorks is also System 7 Savvy: it supports everything System 7 has to offer, including Publish & Subscribe™! BeagleWorks also simplifies the process with Quick Publish™ and Quick Subscribe™ keyboard shortcuts. You can even use Publish and Subscribe under System 6 with BeagleWorks!

| Feature:                                                     | BeagleWorks™ | ClarisWorks™ | GreatWorks™ | Microsoft Works™ |
|--------------------------------------------------------------|--------------|--------------|-------------|------------------|
| In-Context Editing™ (multiple documents)                     | YES          | NO           | NO          | NO               |
| Paint and Draw                                               | 256 custom   | 81 draw      | 256         | NO               |
| Common tool bar w/module-specific tools                      | YES          | NO           | NO          | NO               |
| Log-in scripts/phone book                                    | YES          | NO           | NO          | NO               |
| Multiple columns can be turned on / off anywhere on the page | YES          | NO           | NO          | NO               |
| Auto Sum Tool                                                | YES          | NO           | NO          | NO               |

### First In It's Class

BeagleWorks is an excellent solution for any Macintosh user, and the clear winner overall when it comes to integration and powerful features. But don't take our word for it. MacUser and A+inCider\* magazines have ranked BeagleWorks as the top integrated software program available today. Contact your favorite reseller today for information on special savings for a limited time.



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## Business Software

but also explains why the ubiquitous letter closer *sincerely* is derived from the Latin for *without wax*.

### Rolodex/Calendar

The Mac-software world offers a variety of PIMs (personal information managers) for balancing the details of how and when to contact the multitude of clients, colleagues, suppliers, and other people who are your business contacts. You can buy separate packages for contact management and for calendar management or one package that combines both functions.

A few PIMs go a step or two further. Specialized sales and contact-management tools are geared toward automating and tracking the progress of buying and selling. Two products that offer an appealing combination of specialization and flexibility are Leads!, from Endpoint!, and SuperOffice, from SuperOffice. Although both are meant for sales and marketing environments, each has enough flexibility to be adapted to a broad range of purposes.

Leads! provides places for tracking sales-related activities — phone calls, presentations, requests for literature, and the like — in a dense but attractive layout that sports such nifty features as pop-up menus for easy record creation; it even includes a ZIP-code database and a lookup function that automatically fills in the city and state when you enter a ZIP code. Leads! generates a host of reports, follow-up letters, schedules, and analyses. The package also offers extensive network features, which can, for example, merge input from a field sales team or distribute leads and information to the front lines from headquarters.

SuperOffice has many similar features but is less sales-specific and can easily be adapted to tracking other tasks. It links four types of information: diary data, follow-up actions, customer/account details, and summary reports. This product can be a useful tool if you need to record information in an account-oriented structure — that is, you regularly work

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# NEW NORTON UTILITIES. GREATER THAN THE SUM OF ITS PARTS.

*More than simply combining SUM and the Norton Utilities, we made it faster, more powerful, and easier to use.*

Talk about a win-win proposition. Now you can get the most comprehensive data protection and recovery features for the Mac in a single box. Plus, some innovations that make Norton Utilities 2.0 the very best way to protect your data.

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Using simple menus and icons, Norton Utilities 2.0 combines the technologies from SUM and Norton Utilities to guide you through the best and worst of computing times.



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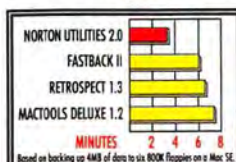
To start, the Norton Disk Doctor® is in and it's more powerful than ever. It automatically diagnoses damaged hard drives and floppies, identifying and repairing both common and uncommon disk errors.

Say you've accidentally erased an important file, the enhanced UnErase® will dig deeper to recover it. The improved

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Norton Backup lets you quickly and easily make backups of single files, folders or large volumes.

codes ensure the integrity of your files.

To make the most of your Mac's performance, check out Speed Disk™, the fast and safe way to defragment your files and optimize your hard drive.



Speed Disk™ accelerates your disk drive performance without risk.

## *Not just the best product, the best value.*

The new Norton Utilities for Macintosh. It's everything you've come to expect from the top two Mac utilities. Plus, all the security, productivity, and system enhancements you'd expect from Peter Norton. In one box. Now what

could be greater than that? To upgrade, or for the name of your nearest dealer, call **1-800-343-4714 ext. 754-F**.

Owners of SUM II and The Norton Utilities for Macintosh can upgrade for just \$39\*—before June 30, 1992.





## Business Software

with the same accounts (customers, clients, vendors, service providers) and need to track the sequence of actions taken on each.

### Tracking System

Whatever system you use for tracking the status of projects — a wall-board, scraps of paper with to-do lists scribbled on them — you need something to put you in control of your tasks and deadlines.

A variety of sophisticated tools is available for project management and task scheduling. One simple way to organize your project-oriented to-do lists is to use Attain's In Control, an outliner that has user-definable columns. Although it's simple to set up and maintain, it provides a surprising degree of organizational clout.

### Clock

Nobody likes being a clock-watcher, but if you bill your services by the hour or track your time on various projects for internal auditing, it's a necessary evil. With Timeslips III, you can avoid the stopwatch syndrome by letting your Mac keep tabs on the clock for you.

Timeslips III enables you to track how much time you've spent on a

particular task that can be assigned to a particular client's account. For each activity you track, the software includes a broad range of time-based billing options. The net result can be accumulated and formatted with Timeslips' bill-layout tool. The optional TAL (Timeslips III Accounting Link) utility directly links Timeslips III's account information to many popular accounting packages.

Alternatively, ASD Software's WindoWatch and Coral Research's TimeLog take a Mac-centric approach, rather than an account-based one, to time tracking. Each program operates continuously in the background, recording how much time you spend in each application or document. If you've named your documents appropriately, this information can be used to determine how much time was spent on various aspects of different projects. WindoWatch can also operate over a network, consolidating time-tracking information for multiple users. TimeLog is better suited for self-analysis than WindoWatch is, providing graphical summaries of how and where your time goes.

Yet another time tracker is Workspace, from ARK, an unusual alternative-Finder utility. The gimmicky part

of Workspace is that it transforms the standard Macintosh desktop into a realistic on-screen desktop that's in the center of a spacious office. (Other "rooms" range from the strange to the bizarre.)

The utilitarian aspect of Workspace is that it lets you group any number of related documents into a user-defined project. Once a document has been designated as part of a project, Workspace assigns to the project the time you spend working on that document. The best thing about a Workspace project, though, is the OverView option, which displays a thumbnail view of each document in the project; you can double-click on this view to open a document.

### Paper Shredder

If you're someone who deals with confidential information, you need to keep electronic documents just as secure as your hard copy. A variety of security tools are available, including password protection to data encryption to card-access hardware. A new package called Shredder, from DLM Software, addresses a problem exacerbated by the emergence of powerful file-recovery and flexible trash-management utilities. Shredder ensures that

## Taking Care of Business

Now that you've assembled the right arsenal of business software, here are five tips for maximizing your return on that investment:

**Get a CD-ROM drive.** Many CD-ROMs provide megabytes of information (statistical data, clip art, texts of professional journals, and every reference work you could ever want). They don't give you any tools for wading your way through this sea of what is sometimes affectionately called shovelware, but even raw information can be more valuable than viewing and manipulating data in clever ways.

**Don't overlook computers that don't look like computers.** From Sharp Wizards to color copiers to bar-code scanners, digital office equipment is getting smarter, more useful, and more convenient.

**Back up — on a regular schedule.** You know you should. You've heard other people's stories. You've been meaning to.

And if you're proud of yourself for backing up, are you doing it right? Do you have a backup to your backup? (If you have a hardware problem, your Mac will eat your backup as easily as it ate the first course and you'll still be out of luck — unless you have a backup backup.)

**Keep your computer data secure.** Why bother — who'd want to spy on your machine, anyway? Nobody — except your competitors, your employees, your boss, or the curious hacker down the hall. And security isn't just to keep predators out; it also prevents accidents (such as what happens when the new assistant who thinks he's doing you a favor reformats your hard disk — you wanted a new format, anyway, didn't you?).

**Organize your desktop.** There's more than one way to skin a Mac. Walk around your office to get new ideas on how to arrange windows, folderize files, use color coding, and apply other no-cost techniques that can streamline your work.



# Video Training Becoming Most Popular, Least Expensive Way to Learn Macintosh Programs

*Macintosh Programs Can Now Be Learned in a Few Hours With A  
Unique MacAcademy Video Speed Learning System*

Over the past five years I've been associated with over 100,000 people attempting to learn the Macintosh computer. I've watched as each one waged their own personal, private battle trying to master the Mac and the most popular Macintosh programs.

I've felt their frustration, have empathized with their confusion and have understood their computer fears. I've talked to employees who had new computers and new programs dropped on their desk with the directive to "learn this." I've listened to people who struggled night after night trying to read and understand a computer manual. It's amazing how a computer manual can make a fairly bright person feel totally inept.

You'd be surprised at the number of people who have confided in me the fact they've given up trying to learn some of the programs. They've put the box on the shelf and simply written the expenditure off as a bad investment.

## Hard Earned Money Wasted

Can you imagine how much money has been wasted on programs and computers that are sitting abandoned? Right now think of the people working on Macs in your office. Do they really understand the computer? How many programs are each of your people using? Have they really mastered the programs? Do they know the shortcuts and valuable techniques that will save you time, money and increase your professionalism?

## An Excellent, Low Cost Training Answer

Five years ago I founded MacAcademy. My purpose was to create a training organization that provided training similar in nature to the Macintosh itself - simple, easy to use and effective.

Now, five years later the concept has proven to be a great success. Right now people are benefiting from MacAcademy training in over 100 cities in the U.S., in Canada, Great Britain, Australia, Japan, Hong Kong and 22 additional countries throughout the world.

MacAcademy training is successful for one reason - it works!

## The Video Answer

Three years ago we introduced the MacA-

cademy Video Training Library. This library now includes over 80 different titles. Each video is 2 hours long and offers clear, concise, effective training. In some cases you can receive up to 8 hours of training for one program.

MacAcademy has resisted the temptation to follow competitive training programs who have recently implemented large price increases. Our videos started out at \$49 each and are still only \$49. This low cost training alternative has proven to be the Macintosh training choice of over 10,000 companies.

## Guaranteed Results

The MacAcademy reputation is excellent. Our guarantee is simple: If you're not happy we'll refund your money. No hassles or problems.

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Here is a partial list of over 80 MacAcademy Video training tapes now available. To order, simply send check, credit card information, or purchase order to MacAcademy Videos Dept. MU 692 477 S. Nova Rd. Ormond Beach, FL 32174 or call the numbers listed below. Now is the time to start training. Thank you for allowing MacAcademy to help you in that effort.

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With Personal Understanding**



## Business Software



files you delete are truly and irrecoverably deleted from floppies and hard disks.

### Telephone

If you've ever needed to respond to phone messages from people you don't know and they never seem to be at their desk when you call at 9:30 A.M. or 4:30 P.M., it might be that they're several time zones away. MacUSA, from PC Globe, may be just what you need. It's primarily a collection of maps and geographically organized demographic information. It also includes a handy DA for looking up the area code and time zone for every major city in the U.S.

If you're a CompuServe (or ZiffNet/Mac) subscriber, there are two handy on-line services that can simplify another aspect of your telephone communications: tracking down correct phone numbers. The Phone\*File service lets you find the phone number for any name or address (or vice versa), and the Biz\*File service gives you instant access to more than 10 million verified business listings gleaned from 5,300 nationwide (U.S. and Canada) Yellow Pages (a \$15 hourly surcharge applies).

### Business-Travel Scheduler

If travel is part of your business life, you probably spend a lot of time on the phone with your travel agent and get less information than you'd like. One way to spend less time and get more information is to go on-line and access travel information yourself.

Lateral Thoughts' Take Flight! provides a user-friendly front end to the on-line OAG (Official Airline Guide) database of flight, hotel, and other travel information. The OAG database is updated constantly and provides timely information as accurately as your travel agent can. CompuServe members already have access to the OAG data, but Take Flight! replaces CompuServe's character-based command interface with a more inviting Mac-like look and feel. With Take Flight!, you're able to get a visual

representation of departure and flight times, search for the lowest fares, enter frequent-flier information and special requests (such as meal and seating preferences), and book your reservations and tickets. And because you can set up your search criteria off-line, Take Flight! keeps your on-line charges to a minimum. (Unfortunately, Take Flight! is currently incompatible with CompuServe accounts established through ZiffNet/Mac.)

### Human Resources

Software is also a useful tool for managing something that most people find difficult to take charge of — people. Human-resources managers should consider the family of products from Abra MacDabra Software (the company behind the long-running "Frazzzzled?" ads), a series of vertical applications that includes Abra 2000, for managing a human-resources department, and AbraTrak, for tracking job applicants.

Anyone with managerial responsibilities can benefit from JIAN's EmployeeManualMaker. Each section of this useful and preformatted workplace-policy template includes commentary and hints on whether including a particular topic in your employee manual is likely to be useful and/or legally advantageous. You can easily customize the manual by searching for keywords (such as *Company*) and replacing them (with the name of your company, for example). Be warned, however, that the template manual includes a steady barrage of plugs for JIAN's other products.

To keep track of your staff, turn to Banner Blue's Org Plus for Macintosh, a handy tool for creating and maintaining organizational charts. Alternatively, a general-purpose flowcharting package can provide additional flexibility for charting a variety of operations and structures.

What about the people beyond the four walls of your office? SMART-disk, a forthcoming HyperCard-based package from American Demographics, will provide a sampling of U.S.

consumer trends based on 1990 census data and will provide guidance on how to piece together more-specific demographic information.

### Business Plans

Tucked away in a drawer somewhere, every company should have a formal business plan that states what the business is, what its goals are, and what its strategy is for achieving those goals. The business plan should be qualitative as well as quantitative and should provide milestones for short- and long-term time frames.

A well-crafted business plan is not just useful for managers in an organization's upper stratosphere but it's also a valuable document at the departmental level, particularly in companies that reward individual groups for their entrepreneurial enterprise. It's also a necessity for those who've decided to forge ahead on their own with a startup business.

Two software packages combine word-processing and spreadsheet templates for all the elements of a solid plan: BizPlanBuilder, from JIAN, and Tim Berry's Business Plan Toolkit, from Palo Alto Software. The former uses a fill-in-the-blanks approach, and the latter uses an interview-style technique that guides you in a thoughtful, creative manner.

### The Way Out

If all else fails, there's one more thing in your office you should consider: your résumé. When it's time to pull up stakes and stake out a new job, Mac software can help you there as well. Better Working — The Résumé Kit, from Spinnaker Software, provides templates that guide you through the process of creating a professional, effective résumé that can help you get your foot in the door of your next employer.

Assistant editor Michele Hasson contributed research assistance to this article. Fortunately, she already follows the solid principles of organized business practices that MacUser editor Jon Zilber merely writes about.



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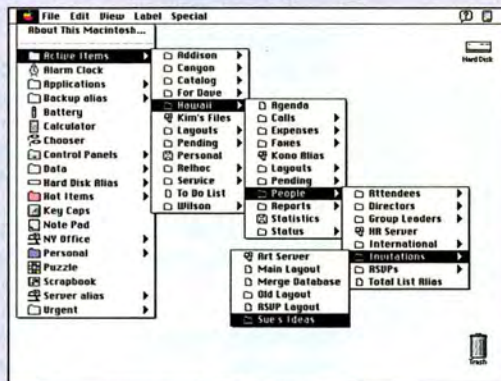
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# Business Software

## Business-Software Directory

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Sunnyvale, CA 94086  
(408) 737-9454  
**Abra 2000**, \$595 to \$1,295  
**AbraTrak 3.2**, \$995 to \$1,990

### **American Demographics**

P.O. Box 68  
Ithaca, NY 14851  
(800) 828-1133  
(607) 273-6343  
**SMARTdisk**, \$189

### **ARK, Inc.**

1201 Third Avenue  
Suite 2380  
Seattle, WA 98101  
(206) 654-4127  
**Workspace 1.1**, \$149

### **ASD Software**

4650 Arrow Highway  
Suite G-21  
Montclair, CA 91763  
(714) 624-2594  
**WindoWatch 1.52**, \$149 to \$749

### **Attain Corp.**

48 Grove Street  
Somerville, MA 02144  
(617) 776-1110  
**In Control 1.0**, \$129.95

### **Banner Blue**

P.O. Box 7865  
Fremont, CA 94537  
(510) 794-6850  
**Org Plus for Macintosh 1.0**, \$195

### **Brio Technology**

444 Castro Street  
Suite 810  
Mountain View, CA 94041  
(415) 961-4110  
**DataPivot 1.0**, \$249

### **Caere**

100 Cooper Court  
Los Gatos, CA 95030  
(800) 535-7226  
(408) 395-7000  
**Typist**, \$695

### **Chena Software**

905 Harrison Street  
Allentown, PA 18103  
(215) 770-1210  
**Fair Witness 1.1**, \$495

### **Cognos, Inc.**

67 S. Bedford Street  
Burlington, MA 01803  
(617) 229-6600  
**PowerPlay 2.0**, \$850

### **CompuServe**

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P.O. Box 20212  
Columbus, OH 43220  
(614) 457-8600  
**Biz\*File**, \$15/hour surcharge  
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### **Coral Research**

P.O. Box 2055  
Stateline, NV 89449  
(702) 588-9690  
**TimeLog 1.01**, \$97

### **DLM Software, Inc.**

3525 Del Mar Heights Road  
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San Diego, CA 92130  
(619) 283-2343  
**Shredder**, \$69

### **Endpoint!**

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Sunnyvale, CA 94086  
(800) 776-5690  
(408) 737-3831  
**Leads!**, \$595 to \$1,795

### **ia Software**

6070 Business &  
Technology Center  
Macomb, IL 61455  
(309) 833-5959  
**Letter Ideas 1.0**, \$125

### **JIAN Tools for Sales, Inc.**

127 Second Street  
Los Altos, CA 94022  
(800) 346-5426  
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**BizPlanBuilder**, \$129  
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### **Lateral Thoughts Ltd.**

335 Pearl Street  
Cambridge, MA 02139  
(800) 253-5542  
(617) 491-0274  
**Take Flight!**, \$149

### **Occam Research**

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Watertown, MA 02172  
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**MUSE 1.01**, \$695

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155 Second Street  
Cambridge, MA 02141  
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**On Location 2.0**, \$129

### **The Open University**

P.O. Box 1511  
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**The Desktop Lawyer Software 3.0**, \$139.95

### **Palo Alto Software**

260 Sheridan Avenue  
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**Tim Berry's Business Plan Toolkit 4.0**, \$149.95

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### **Spinnaker Software Corp.**

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(617) 494-1200  
**Better Working — The Resumé Kit**, \$39.95

### **SuperOffice**

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Lexington, MA 02173  
(617) 674-1101  
**SuperOffice 2.01**, \$395 to \$1,995

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Suite 110  
Scottsdale, AZ 85258  
(800) 624-2485  
(602) 998-9106  
**Acta 7**, \$149

### **T/Maker Corp.**

1390 Villa Street  
Mountain View, CA 94041  
(415) 962-0195  
**FaxMania**, \$69.95

### **Timeslips Corp.**

239 Western Avenue  
Essex, MA 01929  
(508) 768-6100  
**Timeslips III 2.1**, \$299.95 to \$699.95  
**Timeslips III Accounting Link (TAL) 1.0**, \$79.95

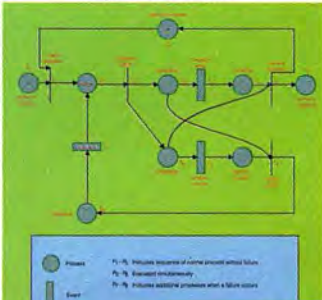
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Novato, CA 94949  
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**Correct Letters**, \$49.95  
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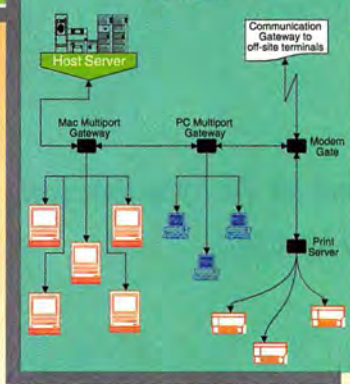
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**Manufacturing Group**



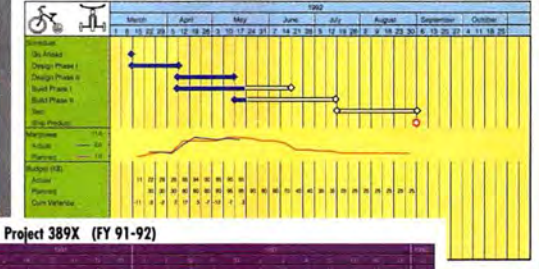
**Marketing's Microcomputer Network**



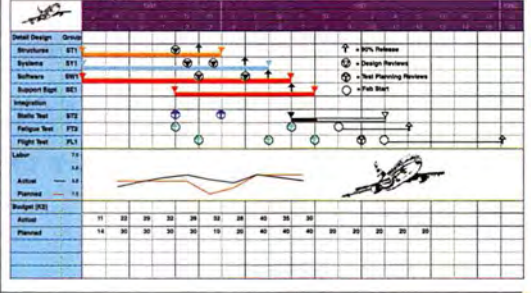
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## MacFlow

## MacSchedule

How are you organized? How does it work? How is it done? Flowcharts provide the best answers to important questions like these. And the highest-rated solution (5 Mice – MacUser) for fast, clear flowcharts is MacFlow.

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Get MacFlow today for better charts tomorrow.

When will it happen? When is break-even? How much will it cost? Gantt chart schedules with integrated financial data provide the best answers to important questions like these. And the best solution for fast, clear project schedules is MacSchedule.

Use MacSchedule to plan projects and keep them on track and within budget. MacSchedule automatically creates and manages a project calendar. Just specify tasks and indicate task timing with the mouse. Status tracking is also as easy as a click of the mouse.

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# Key Words

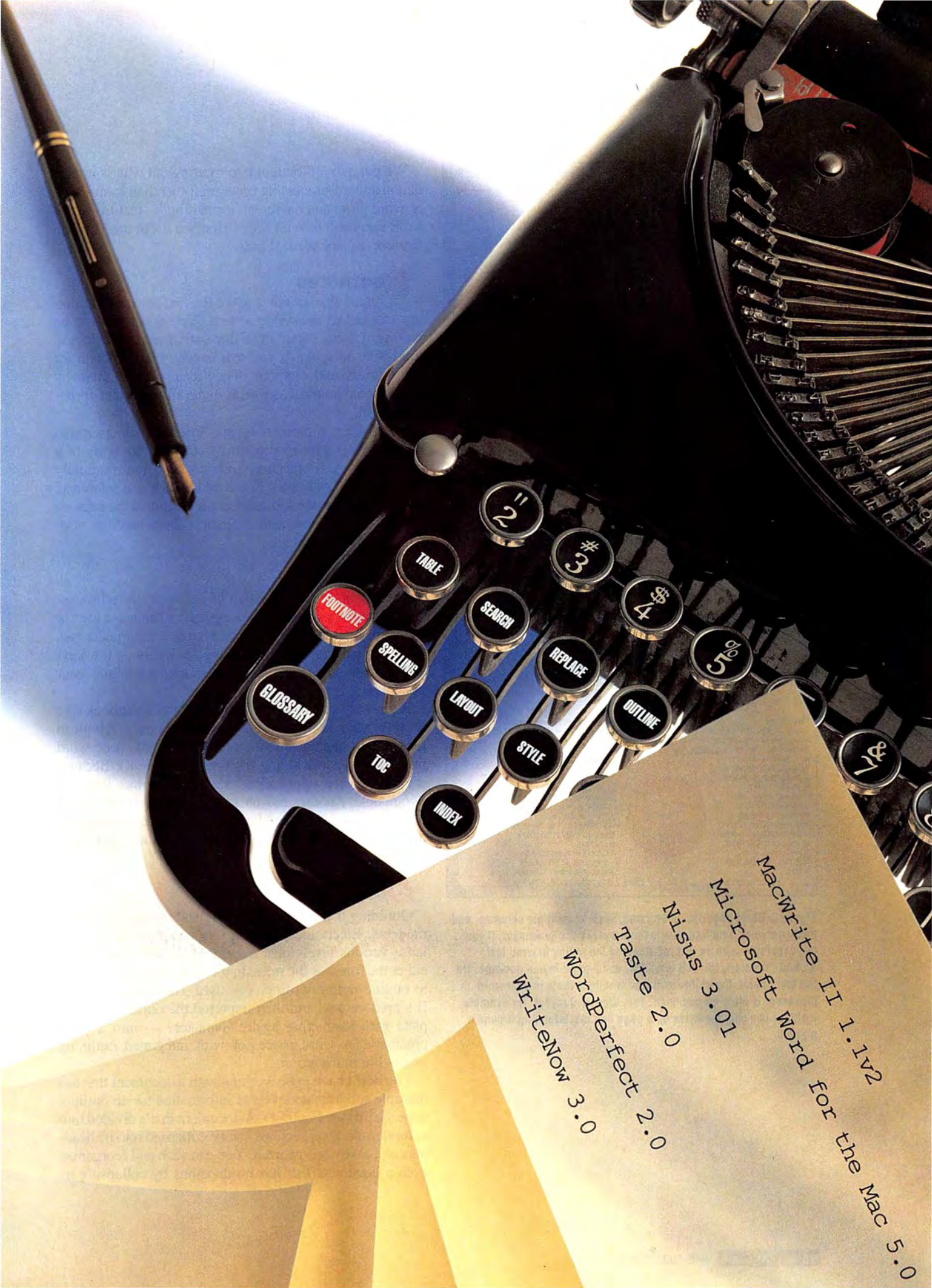
*When you're shopping for a word processor, don't let the hype fool you.  
Here are the essential features to look for.*



**BY SHARON ZARDETTO AKER**

esigning software is a lot like playing poker. With each version, firms raise the stakes, as if new features were chips. The big difference between poker and software, however, is that in software, everyone wants to raise and no one wants to call. In word processors, this game of raise and raise has given users some important features such as style sheets, integrated outliners, and table makers. But it's also given rise to such unnecessary features as integrated drawing environments, color text, and voice annotation. The risk:benefit ratio is weighted in the wrong direction when, to get a powerful program, you must get one that costs megabucks, consumes megabytes, is RAM-hungry, and is bloated with better-done-elsewhere features.





MacWrite II 1.1v2  
Microsoft Word for the Mac 5.0  
Nisus 3.01  
Taste 2.0  
WordPerfect 2.0  
WriteNow 3.0



## Word-Processing Programs

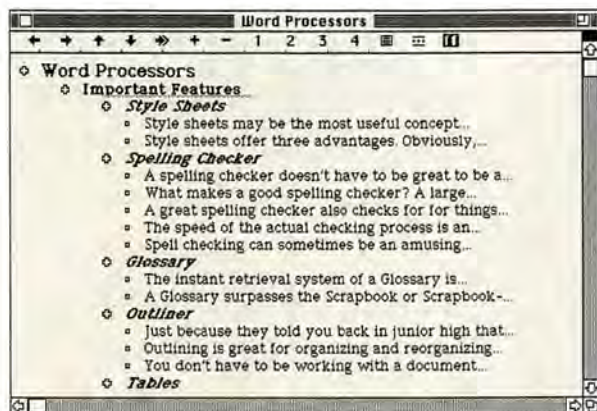


Figure 1: An integrated outliner can be useful even if you're not creating an outline. In this example from Word 5.0, an early draft of this article is shown in Outline view, with the first line of each paragraph shown as an outline item. In this view, you can easily rearrange topics by dragging.

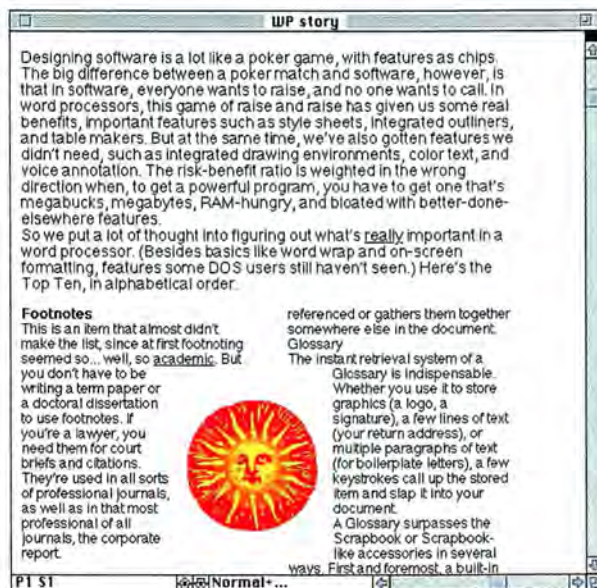


Figure 2: Basic page-layout features, such as multiple columns, and basic graphics handling should be in every word processor. If you need features such as text rotation and the ability to wrap text around irregularly shaped graphics, use a page-layout package. On the other hand, the ability to create simple layouts in your word processor is often all you need. This Word 5.0 layout, for example, includes two column styles on a page and text wrapping around a graphic.

We put a lot of thought into figuring out what's important in a word-processing program (other than basics such as word wrap and on-screen formatting — features some DOS users still haven't seen). Here's a list of the Top Ten features, in alphabetical order.

### Footnotes

This item almost didn't make the list, because footnoting seemed so *academic* at first. You don't have to be writing a term paper or a doctoral dissertation to use footnotes, however. If you're a lawyer, you use them for court briefs and citations. They're also used in many professional journals as well as in the all-important corporate report.

Footnoting is more than just inserting superscripted numbers that refer to supporting text into the body of a document. A footnoting function also automatically rennumbers all footnotes if you add or delete a reference, and it either puts the footnotes at the bottom of the page on which they're referenced or gathers them together elsewhere in the document.

### Glossary

The instant-retrieval system of a glossary is indispensable. Whether you use it to store graphics (such as a logo or a signature), a few lines of text (such as a return address), or multiple paragraphs (for boilerplate letters), a few keystrokes can call up the stored item and put it into your document.

A glossary surpasses the Scrapbook and Scrapbook-like accessories in several ways. First and foremost, a built-in glossary is guaranteed to store the formats your word processor uses (including the ones you invent). Because it's part of the application, it's faster to use than the Scrapbook. Another reason it's faster is that you don't need to use the Copy and Paste commands, and because it doesn't use the Clipboard, it doesn't erase the Clipboard's contents.

### Outliner

Outlining is great for organizing and reorganizing your thoughts. Electronic outlining lets you expand and collapse various levels of a document, so you can look at either the forest or the trees. In the old days, if you wanted to outline before writing, you used ThinkTank (MORE II's predecessor) and then imported the outline — complete with distracting leader characters — into a word processor. A word processor with integrated outlining makes life much easier.

You don't have to be working with a document that has multiple subordinate levels of information for an outliner to be useful (see Figure 1). A document that's divided into several same-level sections can be collapsed into its headings and easily reorganized. You can scan and reorganize even a document that has no divisions by collapsing its



# MacWeek & MacUser's 1991 Utility Product of the Year!

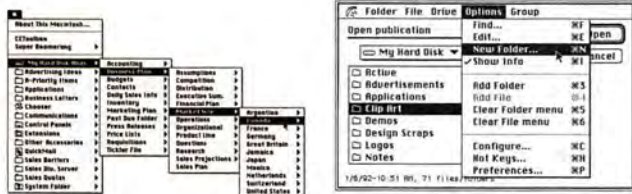


What did it take to get the editors at *MacWeek* and *MacUser* to agree on the best Macintosh utility product?

Unprecedented performance, compatibility, and value. In this case, a collection of 10 utilities that does for System 7 what products like SUM and Norton do for hard disks — only more so. As *MacUser* put it, "Now Utilities will make your Macintosh faster, easier, and more fun to use." For example:

- **StartUp Manager™** provides complete extension management
- **Super Boomerang™** finds files and folders instantly
- **WYSIWYG Menus™** groups fonts in their own typefaces
- **NowMenus™** makes the Apple Menu hierarchical
- **AlarmsClock™** displays the time & reminders in the menubar
- **NowSave™** automatically saves files to prevent data loss
- **Screen Locker™** keeps confidential information confidential
- **MultiMaster™** launches applications and files
- **Profiler™** analyzes system configurations
- **DeskPicture™** puts color and B&W pictures on the Desktop

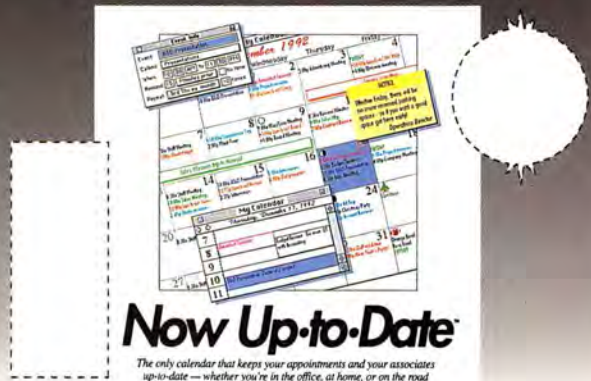
In fact, every utility in the collection is the best of its kind. All of the utilities in the collection are also designed, tested, and guaranteed to work together — and with anything else your customers may have...even System 6. No wonder *MacUser* gave it a perfect five mouse rating and called it "a must-have for experienced users and novices alike."



**NowMenus** saves you a lot of mousing around by creating submenus up to 5 levels deep for anything you put in your Apple Menu items folder — even aliases and other folders. It also pops up the menubar whenever you click your mouse

**Super Boomerang** lists your most frequently used files and folders in all Open and Save dialog boxes and in the Apple menu. It also lets you find files by name or content...even if they've been compressed (a file name search on a 100MB hard disk can take only 3 seconds — without requiring an index)

# MacWeek & MacUser's 1992 Network Product of the Year?



What will it take to get the editors at *MacWeek* and *MacUser* to agree on the best Macintosh network product?

Perhaps **Now Up-to-Date™**: the only Macintosh application that keeps your appointments and your associates up-to-date — whether you're in the office, at home, or on the road.

**Organize Your Appointments** Now Up-to-Date can schedule a meeting to occur at 9:00AM on the first Tuesday of every month and have it automatically appear on your associates' calendars. Scheduled events can be private, shared, or restricted (i.e., only available to people with the correct password.)

**Remember Your Meetings** Now Up-to-Date keeps track of all of your meetings and appointments, so you don't have to. It can also provide advance warning of upcoming events to ensure everyone shows up on time.

**Mobilize Your Office** Now Up-to-Date's versatile printing options include support for all major appointment books, so you can take your calendar on the road. If you own a PowerBook you'll appreciate the fact that Now Up-to-Date doesn't require you to be connected to a network to see your schedule. For that matter, you don't even need to own a network: Now Up-to-Date makes a great single user product, too.

Isn't it time you got up-to-date?



Now Up-to-Date's unique 'Public Calendars' coordinate your schedule with your associates' automatically, so your left hand knows what your right is doing

Now Up-to-Date can repeat events (and their reminders) with whatever frequency you may desire

With all this attention from the press it's not surprising that Now Utilities is already one of the best-selling products on the Macintosh. Now Up-to-Date looks to be just as popular. Call Now at 1-800-237-3611 to learn more about both of these great products, and how they can help you get more out of your Macintosh.

**Now  
Software**



## Word-Processing Programs

**Table 1: Features of Word-Processing Programs**

| ● = yes<br>○ = no                     | MacWrite II<br>1.1v2 | Microsoft Word for<br>the Macintosh 5.0 | Nisus<br>3.06 | Taste<br>2.0 | WordPerfect<br>2.0 | WriteNow<br>3.0 |
|---------------------------------------|----------------------|-----------------------------------------|---------------|--------------|--------------------|-----------------|
| Footnotes                             | ●                    | ●                                       | ●             | ●            | ●                  | ●               |
| Glossary                              | ○                    | ●                                       | ●             | ○            | ○                  | ○               |
| Outliner                              | ○                    | ●                                       | ○             | ○            | ○                  | ○               |
| <b>Page layout</b>                    |                      |                                         |               |              |                    |                 |
| Graphic treated as<br>separate object | ○                    | ●                                       | ○             | ●            | ●                  | ○               |
| Multiple columns                      | ●                    | ●                                       | ●             | ●            | ●                  | ●               |
| <b>Search/replace</b>                 |                      |                                         |               |              |                    |                 |
| Character/paragraph<br>formats        | ●                    | ●                                       | ●             | ●            | ●                  | ○               |
| Clipboard contents                    | ●                    | ●                                       | ●             | ○            | ○                  | ●               |
| Invisible characters                  | ●                    | ●                                       | ●             | ●            | ●                  | ○               |
| Special situations                    | ○                    | ●                                       | ●             | ●            | ●                  | ●               |
| Wildcards                             | ○                    | ●                                       | ●             | ●            | ●                  | ●               |
| <b>Spelling checker</b>               | ●                    | ●                                       | ●             | ●            | ●                  | ●               |
| <b>Style sheets</b>                   | ○                    | ●                                       | ●             | ●            | ●                  | ●               |
| <b>System 7</b>                       |                      |                                         |               |              |                    |                 |
| Publish-and-subscribe                 | ○                    | ●                                       | ○             | ○            | ●                  | ○               |
| Stationery                            | ○                    | ●                                       | ●             | ○            | ●                  | ●               |
| Table of contents/index               | ○                    | ●                                       | ●             | ○            | ●                  | ○               |
| Tables                                | ○                    | ●                                       | ○             | ○            | ○                  | ○               |

paragraphs down to their first lines, which makes re-arranging paragraphs a snap.

### **P**age Layout

Page layout incorporates a wide range of features: Some should be included in a word processor, but others are overkill. The layout features that are useful in a word processor are multiple columns and basic graphics handling (see Figure 2).

A word processor that provides multiple-column capabilities (usually columns of equal width) should let you mix the number of columns on a page so that you can, for instance, have a single-column banner headline across a three-column body.

You shouldn't expect text to be able to automatically wrap around nonrectangular graphics, but do look for a program that treats an image as a graphic, not as a text character. Otherwise, you won't be able to have more than a single line of text on either side of a graphic. You should also be able to resize and crop graphics.

### **S**earch and Replace

Every word processor has search and replace functions, but look for a program that can handle more than simple text in search-and-replace procedures (see Figure 3). It

should also be able to handle invisible characters (Returns and tabs), paragraph and character formats (change all the underlined characters to italics, for example), and Clipboard contents. You should be able to specify wildcard characters, ranges (such as any number from 1 to 5), and special situations such as "any paragraph that starts with a number followed by a tab."

### **S**pelling Checker

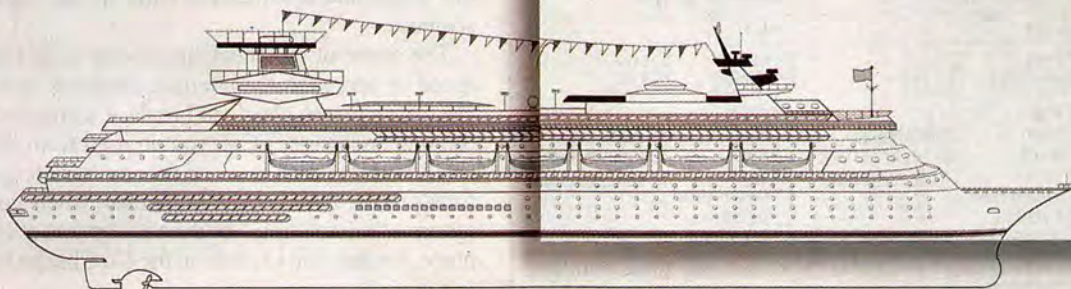
A spelling checker doesn't have to be great — a good one will do. Whether you're a poor speller or a poor typist or even just make an occasional mistake — whoops, *occasional mistake* — a spelling checker can save unnecessary embarrassment and misunderstandings.

What makes a good spelling checker? A large dictionary is a start, but it's the quality of the suggested replacements that makes or breaks a spelling checker (see Figure 4). Using the nearest alphabetic equivalent — *teh* gets replaced by *tee*, *tea*, or *ten* instead of *the* — isn't good enough. A good spelling checker also provides an editable dictionary to which you can add words. "Normal" words in this article weren't in our spelling checker's standard dictionary, so the suggested replacement for *MacUser* was *macabre*, and for *QuickTime*, it was *quicklime*.

A great spelling checker also checks for such things



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1590 passengers. 70,000 gross tons. 811 feet in length. 14 Decks. Pizzeria. Health and beauty center. Two pools, one with in-pool bar. Four whirlpool spas. Ultra-spacious staterooms, many with verandas and balconies. Observation lounge with entertainment complex and casino. Italian registry.



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## GET THE NEW WIDEWRITER 360.



If you've been waiting for an affordable desktop printer that can handle the really big jobs, your ship has finally come in. Introducing the new WideWriter 360™ from GCC Technologies® — the wide-carriage inkjet printer capable of printing on

17" x 22" (C-size) paper. With the WideWriter 360, printing large CAD

drawings, super spreadsheets and gigantic graphics is no big deal. And because it can also print on a variety of paper sizes including letter, ledger and fanfold, there's little the WideWriter 360 can't handle.

The WideWriter 360 is fast and quiet. Plus its 360 x 360 dpi resolution produces crisp, laser-quality lines, text and graphics. Of course, this large format printer is also big on features, including:

- **AppleTalk networking or serial.** Automatically configures for shared or personal use.
- **Background printing.** Returns control of your Macintosh to you faster.

- **ATM and Adobe Type 1 fonts are included, with support for TrueType.** Gives you unlimited font access in any size.

- **Flexible paper handling with our multiple sheet feeders.** Lets you take letterhead from one feeder and subsequent pages from the optional second feeder.

The WideWriter 360 also features the unmatched reliability and innovation that are standard in every GCC Technologies product. It's the only name to count on when you want a high quality, large format printer that fits even the smallest budget.

**Easy Ordering. 800-422-7777, extension 529.**

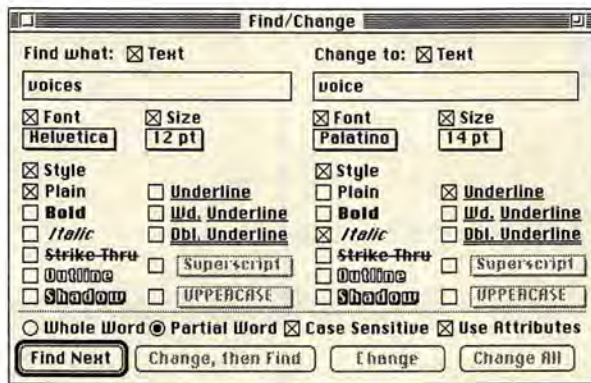
The WideWriter 360 is available for the amazing price of just \$1699! To order your WideWriter 360 or for the name of the dealer nearest you, simply call us toll-free. When you order direct from us, you get a 30-day money-back guarantee and \$9 Federal Express overnight delivery.



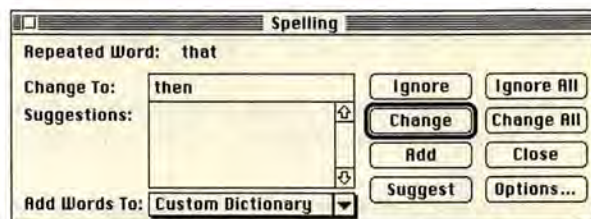
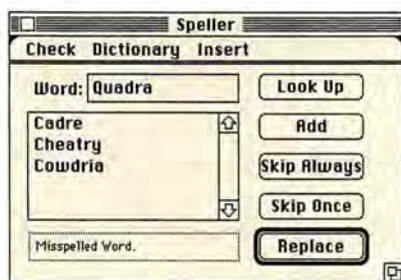
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## Word-Processing Programs



**Figure 3: Extensive search-and-replace capabilities are essential. MacWrite II gives you immediate access to many font and character styles. You can also enter invisible characters, such as tabs and paragraph breaks, by using special characters. Nisus and Word 5.0 include paragraph styles and more.**



**Figure 4: Every word processor should have a spelling checker. WordPerfect 2.0 (top) demonstrates why you need an editable user dictionary. Word 5.0 (bottom) shows that a good spelling checker can find more than misspellings. In this case, it flagged a repeated word.**

as double words (our checker caught them in this sentence; did you?) and a lowercase letter at the beginning of a sentence.

The speed of the checking process is an issue, but the speed of operation the interface allows is also important. How easy is it to check and replace words or to keep the original unchanged? Can you do it all from the keyboard or all with the mouse — or do you have to go back and forth? Does the checker remember when you tell it to ignore a “misspelling,” or does it stop you at every occurrence, forcing you to click on the No Change button again and again?

Spell checking can sometimes be an amusing pastime. Word 4, for instance, suggests replacing the unknown *childcare* with *kidnap*er (sic). Or how about the teacher whose letters of recommendation almost went out praising his third-rate students, when they were third-year students? If a typo turns one word into another correctly spelled word, there's no hope. The current edition of *The Macintosh Bible* discusses public-domain software — but in one draft, the *l* was dropped from *public*, and the spelling checker didn't mind at all.

## Style Sheets

Style sheets may be the most useful concept introduced to the world of word processing. A *style* is a collection of paragraph and character formats (fully justified, .25-inch first-line indent, 12-point bold Optima, for example) that you can apply to a section of text. A collection of the styles that are used in a document is called a *style sheet* (see Figure 5).

Style sheets offer several pluses. Obviously, there's the ease of formatting, but that's not limited to applying a single style to the current paragraph. You can define one style as being followed by another, so you can type something in a Chapter Title style, for example, and as soon as you press Return, you're automatically in the Body Text style. There's also the ease of reformatting: If you change the definition of a style, all the paragraphs to which you've applied the style will change accordingly. And with some style definitions based on other styles, changing the base style can ripple the changes through other styles too. Finally, using style sheets gives you consistent formatting throughout a document or across a series of documents.

## System 7 Specials

Users can assume that the major word-processing programs can run under System 7, but you'll want one that incorporates two of System 7's major features: publish-and-subscribe and stationery.

Using your word-processing program to subscribe to items published by other programs can significantly increase your efficiency, because it takes so little time, effort, and disk space to update a graphic, a spreadsheet chart, or text that belongs to another document.



# LEAN, MEAN, POSTSCRIPT MACHINE.

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LOWER  
PRICES!**



## THE BLP ELITE. NOW JUST \$1399.

**T**he first affordable PostScript® printer designed specifically for Macintosh® users has just become more affordable. It's from GCC Technologies® and it's called the BLP Elite.™ A printer so advanced that it offers exactly the features you're looking for, at a price you've never seen before. Now just \$1399.

That's significantly less than the nearest competitor. But that doesn't mean the BLP Elite has less to offer. In fact, the BLP Elite is packed with more features you want, like true Adobe® PostScript and built-in AppleTalk® for sharing over a network. There's also edge-to-edge printing for super-sized spreadsheets and banners, and a straight-through paper path for printing wrinkle-free envelopes and labels.

The new BLP Elite is a faster printer, too.

In fact, with its 16.67 MHz processor, it's one of the fastest 4 ppm (page-per-minute) PostScript printers you can buy.

But what makes the BLP Elite a more sophisticated, more affordable printing machine is its breakthrough technology, engineered at GCC.

At the heart of the BLP Elite is the most compact, cost-effective PostScript controller board ever designed. A compact controller means two things: fewer components and lower manufacturing costs, which translates to exceptional product reliability and a significant cost savings for you.

**800-422-7777 for the BLP Elite, extension 645.**

The BLP Elite PostScript printer is available from your Authorized GCC Dealer or directly from GCC. Call 800-422-7777, extension 645, for the name of the dealer nearest you or to place your order directly with us. Either way, you'll find it's painless to go lean and mean with the BLP Elite.



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## Word-Processing Programs



Figure 5: Style sheets make formatting a document fast, convenient, and consistent. WriteNow 3.0, which should be available by the time you read this, makes it easy to understand what a style sheet does and which other styles it is based on. The Next Paragraph Use pop-up list lets you link style sheets.

| Smaller Cacti                                    |                                                                                                                         |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Seven Sisters<br>(Aricarpus retusus)             | Flat, 4 to 7 inches wide, pink flowers.                                                                                 |
| Sand Dollar<br>(Astrophytum asterias)            | Flat, about 3 inches across, ribbed body, small flowers.                                                                |
| Devil's Pincushion<br>(Coryphantha robustispina) | Name suggests shape; 2 to 4 inches across.                                                                              |
| Larger Cacti                                     |                                                                                                                         |
| Rat tail Cactus<br>(Aporocactus flagelliformis)  | The long stems are more like sausages than rat tails, about a half-inch in diameter, and hairy. Flowers are bright red. |
| Golden Barrel Cactus<br>(Echinocactus grusoni)   | Has beautiful clear yellow spines.                                                                                      |
| Night-blooming Cactus<br>(Hyloczeus undatus)     | Only rarely flowers indoors.                                                                                            |

Figure 6: A table generator may sound like a specialized tool, but once you have one, you'll wonder how you ever got along without it. Word is the only word processor that includes a table maker, and it makes creating comparative tables and side-by-side text easy.

Stationery, a seemingly minor item in System 7, is actually a boon to every program, but particularly to a word processor. Stationery lets you create templates of fill-in-the-blank memos, boilerplate cut-what-doesn't-apply letters, and empty documents that have no text but are used to store style sheets for specific situations.

### Tables

There are some things in life that you don't know you want, because you don't know they exist, or you may be aware of their existence but have no idea of just how good they can be. Flannel sheets for cold winter nights are an example of those things; a table feature in your word processor is another.

Forget about a minispreadsheet in the middle of your document; there are few, if any, mathematical functions in most word processors. (If you really want them, there are always integrated-software packages such as ClarisWorks.) Tables are a great way to handle columnar text or numbers,

because it's so easy to manipulate the contents and positions of rows and columns. A table has cells that grow vertically as you type, can be adjusted horizontally on a ruler, and can easily be framed with a variety of borders. Using a table in a word-processor document is also a way to juxtapose different paragraphs of text or text and pictures without having to use page layout (see Figure 6).

### Table of Contents and Index

A TOC (table of contents) feature is generally more useful than an indexing feature, but we're grouping them together, because they're Siamese twins: You seldom find a program that has one without the other.

Most users don't need indexing capabilities; documents aren't generally long enough or aren't the type that need indexing. A TOC feature can be used for more than chapter titles in your Great American Novel. It can, for instance, provide a page-numbered list of tables or illustrations in a technical document.

### And Also . . .

These aren't the only important word-processor features, but we didn't want to write an article called "101 Important Word-Processor Features." Some of the items that we considered but that didn't make the final cut included mail-merge; a thesaurus; linkable files; and those little things that mean a lot, such as smart quotes and a myriad of selection techniques.

### What You Don't Need

Once every feature deemed important for a word processor is contained in a program, what else can possibly be added? The unimportant, although seemingly impressive, stuff. One way to add unimportant features is to expand something terrific out of proportion: A collection of keyboard command equivalents is good, so a large collection is great. But somewhere along the line, a large, great collection turns into a huge, ridiculous one, and things have gone too far. Leaf through this issue of *MacUser*, and see if you can find an ad for a word processor that offers more than 125,000 keyboard command equivalents.

Aside from too much of a good thing, what else don't you need in a word processor? How about . . .

**Color.** Color was the first useless thing to be added to word processors. Can you print in color? Can you see colored text on-screen unless the font is big and bold? 'Nuff said.

**Grammar checker.** A word-processing program with a good grammar checker would be great, but in fact there ain't no such thing. A grammar checker might flag passive-voice constructions, but it's basically too dumb to be more than a nuisance. Do you really want a homonym alert every time you use *your/you're* or *here/hear* or, as in the case of one checker, whenever you use the word *the* — just in case you actually meant the archaic *thee*?



# IF YOU DON'T HAVE THE PLP II, YOU'LL NEED SPECIAL EQUIPMENT TO GET EDGE-TO-EDGE PRINTING.



If you want a printer that's a cut above the competition, look no further than the \$949 Personal LaserPrinter™ II (PLP™ II) from GCC Technologies®. GCC's

exclusive edge-to-edge printing gives you the power to produce larger graphics, flow charts, and much more. With other printers, like the Apple® Personal LaserWriter® LS, you're forced to cope with margins that confine your graphics and narrow your options.

Edge-to-edge printing is just one of the features that set the PLP II apart from the pack. Other features include:

- **PostScript upgrade.** Provides an upgrade path to PostScript® and AppleTalk® networking.
- **Greater scaling capabilities.** Scales from 25% to 400% in 1% increments, compared with the Personal LaserWriter LS, which is limited to 50% and 75%.
- **Straight-through paper path.** Ensures wrinkle-free printing of heavy stocks, envelopes, labels, etc.
- **New! Background printing.** Lets you get back to work on your computer faster, and allows sharing using AppleShare® with System 7.0.

- **Faster print time.** Prints faster than the Personal LaserWriter LS. In fact, *MacUser* (May 1991) found the PLP II to be 20% faster than the Apple Personal LaserWriter LS on their Microsoft® Word test document, 40% faster on their MacDraw® II test, and twice as fast on their Excel test.

- **On-screen page preview.** Saves time, toner and paper.

Of course, the PLP II also features the unmatched reliability and innovation that go hand-in-hand with the GCC Technologies name. It's the name to count on when you're looking for a high-quality, affordable laser printer. And there's no margin for error.

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## Word-Processing Programs

**Table 2: Word-Processing Programs**

|            |                                                                                   |                                                                                               |                                                                                                              |
|------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|            |  |              |                           |
|            | <b>MacWrite II</b><br>1.1v2<br>★★★★½                                              | <b>Microsoft Word for the Macintosh 5.0</b><br>★★★★½                                          | <b>Nisus</b><br>3.06<br>★★★★½                                                                                |
| List price | \$129                                                                             | \$495                                                                                         | \$395                                                                                                        |
| Company    | Claris Corp.<br>5201 Patrick Henry Dr.<br>Santa Clara, CA 95052<br>(408) 727-8227 | Microsoft Corp.<br>One Microsoft Way<br>Redmond, WA 98052<br>(800) 426-9400<br>(206) 882-8080 | Paragon Concepts<br>990 Highland Dr., Ste. 312<br>Solana Beach, CA 92075<br>(800) 922-2993<br>(619) 481-1477 |

|            |                                                                                                      |                                                                                                   |                                                                                     |
|------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|            |                     |                  |  |
|            | <b>Taste</b><br>2.0<br>★★★★                                                                          | <b>WordPerfect</b><br>2.0<br>★★★★                                                                 | <b>WriteNow</b><br>3.0<br>Not shipping at press time.                               |
| List price | \$149                                                                                                | \$495                                                                                             | \$249                                                                               |
| Company    | DeltaPoint, Inc.<br>2 Harris Ct., Ste. B-1<br>Monterey, CA 93940<br>(800) 367-4334<br>(408) 648-4000 | WordPerfect Corp.<br>1555 N. Technology Way<br>Orem, UT 84057<br>(800) 321-4566<br>(801) 222-5800 | T/Maker Corp.<br>1390 Villa St.<br>Mountain View, CA 94041<br>(415) 962-0195        |

**Integrated drawing.** The whole point of publish-and-subscribe is that you can use the right tools for the right jobs and integrate the results as well as easily make changes in the original environment. So why would you want a second- or third-rate drawing module built in to a word processor? Most users can't create a first-rate illustration, even in a first-rate drawing environment.


**Page layout.** Although we've already discussed page layout, we've addressed only basic features. Advanced page-layout capabilities such as text rotation, master-page elements, and text wrap around irregularly shaped graphics are unnecessary in a word processor. If you need these kinds of features, get a page-layout program.

**Sound.** If you want to turn a 10K word-processing document into a 1-megabyte document, add sound (at roughly 25K per second). There are more "benefits" to this process: You'll spend extra time hunting for your microphone (if you have one), recording the sound, and saving the document; you'll consume more disk space; you'll waste more time sending the file over a network; you'll waste the time of the person who's receiving the file; and you'll tie up network resources twice in the process — just so the recipient won't miss the subtle nuances of your

mellow tones. If you're unable to type it, pick up the phone.

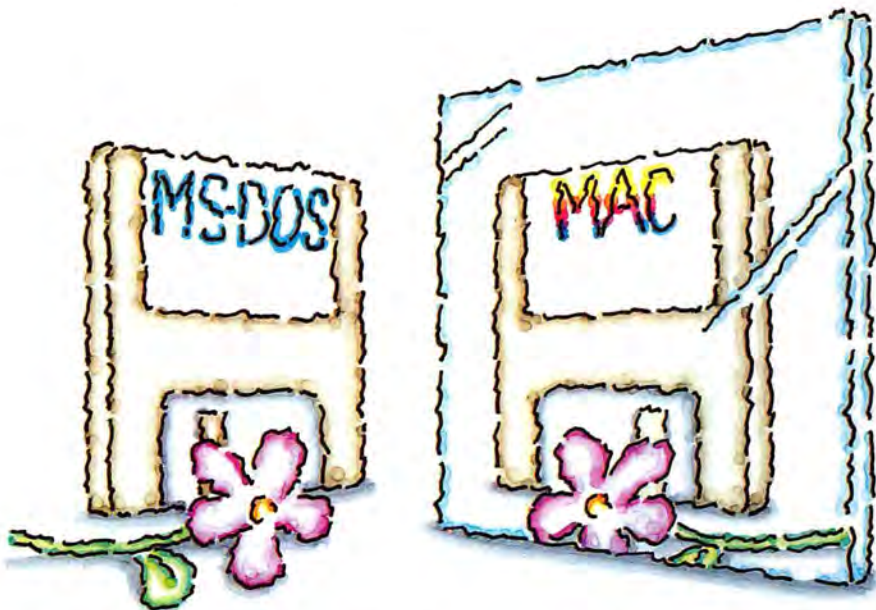
**QuickTime.** If color is unnecessary and sound is a waste of time and space, what does that make QuickTime movies in a word-processing document? Ridiculous at best. We're not Luddites; movies can convey more and different information than text can and QuickTime will have uses we haven't thought of yet, but the vehicle is not a word processor.

### The User's Call

The irony of the word-processor creeping-featuritis situation is that users can't do anything about it. There aren't many choices, and if you need the important features, you'll also get the unimportant ones — and pay for them in disk space, RAM allocation, and cash. But cheer up: Maybe word processors will soon have so many features that we'll be able to buy the core set and purchase the other modules separately. Or, better yet, *not* purchase them. 

Sharon Zardetto Aker, author of *The Macintosh Bible* and *The Macintosh Companion*, uses a word processor that does most of the important things and all of the unimportant ones.





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**CIRCLE 153 ON READER SERVICE CARD.**



# They laughed when database, but every



Okay, so maybe I'm not in MIS, but I grinned and loaded FoxBASE+/Mac.

The next day, I showed them a sample of their PC inventory database with not just how much of anything we had, but with pictures showing exactly what it looked like.

I ran their dBASE sales analysis program (using a couple of new Mac screens I whipped out) as they watched FoxBASE+/Mac scream through the numbers.

And then I showed them the kinds of reports they could get, using data stored in Fox or dBASE IV/III+ files on the PC.

You could have heard a pin drop.

Then they were all over me with questions, so I just handed them the FoxBASE+/Mac manuals and smiled.

Besides not being in MIS, I'm not a professional programmer, so you can tell how easy FoxBASE+/Mac is.

For the inventory system, I just used





# I brought in my own one's smiling now.

FoxBASE+/Mac to read the database files they had on the PC (it reads Fox and dBASE IV/III+ files directly). I added a memo field into which I cut and pasted pictures that our DTP department had for our customer literature. Then I used the MacDraw-like screen painter to create a great color Mac output screen.

The sales analysis was easy, too. I had to create new screens but FoxBASE+/Mac ran the rest of the dBASE III+ program just fine. (It typically runs as much as 95% of standard FoxBASE+/PC and dBASE III+ code with no changes.)

And I built the reports I showed them from scratch. With no programming at all.

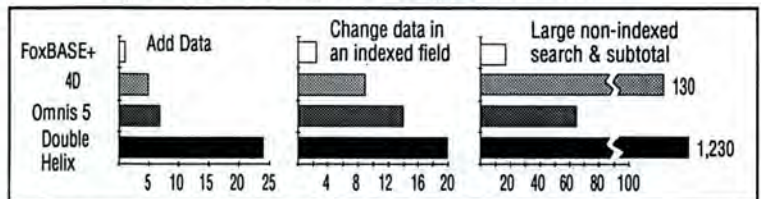
If you're looking for a better way to manage your data, call Fox Software and ask for their free demo. It limits the number of records you can store, but is the full program, so you can check it all out for yourself on your applications.

Around here, MIS has been pretty busy the last few weeks. They've hooked up Macs and PCs on an Ethernet network and our information and data processing systems are looking great.

They're building Hypercard-like applications I see people using all over the place.

Accounting likes all of this because the single-user version lists for \$495, and the unlimited Multi-User version is only \$695.

And even the PC programmers are happy. I hear them talking about things like the great trace and debugging facilities, adding XCMDs and XFCNs, the dBASE-like programming language, System 7 compatibility, full file and



As MacUser said, with FoxBASE+/Mac "data handling is extremely fast."

record locking in the multi-user version, and how FoxBASE+/Mac is "so astoundingly fast for a Mac."

Everyone seems to be laughing more now, too.

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**FoxBASE+/Mac**™



# New Dimensions in Spreadsheets

**T**he perfect spreadsheet program is a mix of powerful features, blazing recalculation speed, and innovative data-exploration and -presentation tools. It must also sport an interface that makes creating and maintaining your documents simple. A good spreadsheet program reduces manual labor without forcing you to resort to the manuals.

*No longer a  
one-horse race,  
the spreadsheet  
wars are hotter  
than ever.  
Choosing  
the right  
spreadsheet  
program  
depends on what  
you do with  
your numbers.*

Microsoft Excel has dominated the spreadsheet arena for years, but two new full-featured challengers — Lotus 1-2-3 for Macintosh and Claris Resolve — give it a real run for the money. Another challenge is coming from the newly crowded field of integrated-software packages, which include spreadsheet modules powerful enough for many users. These new options have introduced new dimensions for you to factor in to your spreadsheet-program selection, both literally and figuratively.

All of today's spreadsheet programs cover the basics pretty well: They all let you store volumes of text and numeric data in rows and columns of cells (with more cells available than you'll ever need), manipulate the data in the cells with a wide variety of formulas, and present the results in your choice of attractive graphic formats. Which spreadsheet program is best for you depends largely on what you do with your spreadsheets: Do you use spreadsheet programs to create custom spreadsheet-based applications, consolidate multiple spreadsheets into sophisticated and complex corporate models, or generate charts for presentations — or do you just need to work out a few "back of the envelope" calculations?

**BY LOUIS E. BENJAMIN, JR., AND JON ZILBER**







## Spreadsheet Programs

### Upgrades and Price Wars

The Big Three spreadsheet programs must provide compelling reasons for users who are satisfied with their current package to either keep upgrading or switch to a competing package. Most of the spreadsheet-program publishers now offer attractive "competitive upgrades," allowing you to switch brands for roughly the same discounted price offered to upgraders of the same program.

Equally tough price competition comes from the new crop of integrated packages that offer a spreadsheet module along with word processing, telecommunications, graphics, and other abilities — usually for less than the price of a stand-alone spreadsheet program. In fact, Microsoft and Claris offer integrated packages that compete with their stand-alone spreadsheet programs. (For an overview of simple spreadsheet programs, see "Sensible Spreadsheets," October '91, page 106; for a roundup of integrated packages, see "Swiss-Army Software," elsewhere in this Buyer's Guide.)

The Big Three have raised the bar for spreadsheet programs, adding a wide range of powerful features and tools for creating, analyzing, and

presenting worksheets and charts. Here's a look at some of the main pros and cons of each package.

### Excel: Older and Wiser

Excel is older than the rest of the pack, and version 3.0 is proof that you can indeed teach an old dog new tricks. Its greatest strengths lie in its facilities for building worksheets easily, from simple ones to complex, heavily customized systems. And as this article was being written, Microsoft was completing the development of version 4.0, which will offer additional enhancements in the areas of usability, charting, and data analysis (see "New on the Menu," May '92, page 41).

The biggest changes between versions 2.0 and 3.0 are targeted at users who frequently turn to their spreadsheet program to do quick-and-dirty analysis or who use it to sort and organize small databases. For this kind of casual spreadsheet, you need a tool that is easy to learn the first time and that imposes a low overhead for creating small worksheets that may be used only once. Casual spreadsheet users care more about getting the job done in minutes than about the minutiae of spreadsheet subtleties.

To simplify small-spreadsheet creation, Excel applies the 80/20 rule: Make it easier to use the 20 percent of the features that most users need 80 percent of the time. Excel's most notable addition in version 3.0 is a tool bar for accessing a handful of key features (see Figure 1). Excel's tool bar keeps frequently used commands and functions — sums and totals, typographic-style modifiers such as bolding and italicizing, and so on — on display instead of buried deep down in a maze of dialog boxes.

Excel is the only spreadsheet program to feature style sheets similar to those found in word processors. Instead of being hidden in menus, the style-sheet controls are on the relatively spare tool bar. The tool bar also features controls for text alignment, one of the most commonly used functions for spreadsheet builders.

### In the Holding Cell

Two other full-featured spreadsheet programs — Informix's WingZ and Borland's Full Impact (acquired from Ashton-Tate) — are technically still on the market, but neither has kept pace with the times. WingZ originated several spreadsheet features, such as impressive 3-D charting and sophisticated scripting, and Full Impact gets historical kudos for its innovative interface and flexibility. Each product can provide adequate power for many users, but you should consider either one only on an as-is basis; future upgrades and technical support for both are an iffy proposition.

Informix now markets WingZ primarily as part of a multiplatform strategy targeted at users who need SQL connectivity. However, Lotus 1-2-3 for Macintosh offers easier connections to SQL databases and

If alignment isn't that vital to you, perhaps summation is. Excel's unique auto-sum function makes simple work out of summing columns of numbers. When you apply the auto-sum icon to a cell, Excel makes a reasonable guess about what range of cells you want totaled. It generally makes these guesses by looking up (or left) for an empty cell in that row (or column) and assumes that you want to subtotal everything since the last blank cell. Its guesses are generally correct, and you can easily override them if they're not. And because you'll probably want to use this capability frequently, it may help discipline you to create meaningfully laid-out spreadsheets.

(Version 4.0 of Excel will exercise even more intuition. Its AutoFill feature detects patterns in adjoining cells and automatically fills the subsequent cells accordingly. For example, it knows that *March* follows the sequence *January*, *February* and that 300 should come after adjacent cells containing 100 and 200.)

As you build a worksheet in Excel, several subtle features make life easier. If you select several columns by dragging across the column letters, you can make all the columns the same width by dragging the edge of one of

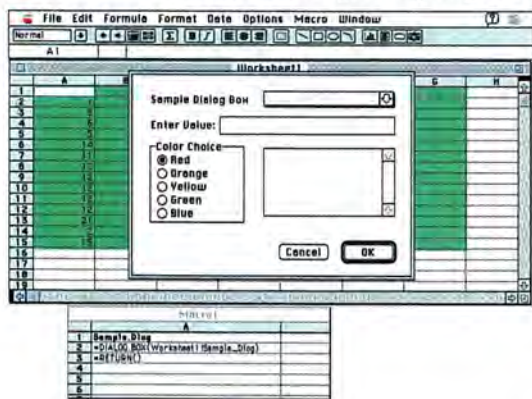


Figure 1: The new tool bar in Excel 3.0 (directly below the menu bar) gives you instant control over frequent spreadsheet operations such as creating subtotals, bolding data, or changing the alignment of text. Excel also lets you customize dialog boxes (such as the sample created here), and it boasts a powerful macro language (shown in the bottom window).



Claris Resolve has most of WingZ's features in an easier-to-use package.

One WingZ feature that remains unique is its interface for sorting. You create as many sort levels as you need by clicking on cells and selecting a menu command, much as you set the database-criteria range in Excel. Once you've set all of your sort-related ranges, you execute the sort. This scheme lets you sort on as many levels as you need, although you may lose track of what sort criteria you've set.

One of Full Impact's most distinguishing features is its pioneering interface for adding sound notes to cells. You simply click on a cell, choose a menu command, click on a button, and speak into the microphone; playback of recorded notes takes just a click of a button.

them. Or you can double-click on the border of any column to make all the columns auto-size themselves to accommodate their widest data.

All the spreadsheet programs covered here let you know what column or row you've scrolled to while you're moving the thumb (the box in the scroll bar). Only Excel, however, tells you the number of rows and columns you've selected as you drag within the spreadsheet. That feature was particularly useful before version 3.0, because it helped you plan how many rows to insert before cutting the cells from one part of the worksheet and pasting them somewhere else. Now, Excel has an Insert Paste command, which automatically inserts the right number of rows and columns when you cut cells from one part of the worksheet and place them elsewhere.

Excel stores the names of your most recently opened files in the File menu, so you can easily find them later. It also remembers the last command you performed and lets you reapply it by typing Command-Y.

Excel has a robust macro language and other tools for fully customizing your Excel-based applications. For example, they let you replace the Excel menus with your own, create custom

dialog boxes with precise positioning of all elements, and use external code resources to provide abilities that are not built in to Excel's own command language. Excel provides mechanisms that let your macro system take control as soon as you launch the program, when you open a worksheet, or when you close a worksheet. This is especially useful if you're customizing a system for other users who should have access to a limited number of operations only — the spreadsheet equivalent of installing a childproof cap. Also, a type of macro called an add-in lets you create special macro functions that appear to be part of the Excel language and don't require the usual external reference notation.

When you're creating macros, Excel provides a way for you to step through and troubleshoot your code as it executes. Several macro templates in the Excel package can help you with the development and testing of complex macro systems.

Excel provides a very robust Consolidate command. It allows you to fine-tune consolidations, so the geometries of the worksheets that are being consolidated don't necessarily have to match.

Excel's outliner is unique in the spreadsheet world. It allows you to collapse the detail from sections of a worksheet, showing only subtotals, data for a particular subcategory, or other highlights. The outline can be instantly expanded or collapsed to focus on portions of your data when screen space is a constraint. Spreadsheet outlines can be generated automatically, although Excel's guesswork here is not quite as impressive as its auto-sum intuition.

Excel's Print Preview feature lets you adjust the page setup and margins and see how a printout will look without having to print repeatedly to see the results. Buttons in the Print Preview window give you access to everything you need to make adjustments.

If you live in a mixed Mac/Windows world, you can easily swap applications and worksheets with the

Windows version of Excel. Microsoft maintains a high degree of compatibility by breaking with Mac-interface conventions at times and by sticking to a least-common-denominator philosophy. This approach may bother dyed-in-the-wool Mac purists, but it eases headaches for those needing cross-platform consistency.

Excel's biggest deficiencies lie in charting. You often end up playing a little guessing game about how the chart will look when Excel creates it for you. You can use the Paste Special command to retain some control, or you can even try your luck with editing the underlying series formulas that generate the chart.

Although you can place charts on a worksheet, you have to double-click on the chart and work with it in a separate window. At that point, you can no longer see any drawn objects you've placed on top of the chart. Furthermore, things that look properly aligned on-screen occasionally may not print as expected.

Whatever your approach, *intuitive* is not likely to be a word you use to describe the process. However, Excel 4.0 promises to simplify matters by adding a tool called ChartWizard to assist in creating graphics.

### 1-2-3: The Countdown Is Over

Lotus 1-2-3 for Macintosh is not merely the long-awaited Mac version of the dominant PC spreadsheet program. 1-2-3 Mac has features and capabilities not available in any other Mac spreadsheet program or in any version of 1-2-3 for other platforms. 1-2-3 Mac takes full advantage of the Mac platform, providing a compelling reason for former DOS 1-2-3 users who want presentation quality to switch to the Mac product.




Lotus scores its biggest hit with 1-2-3's superior charting capabilities. Another intriguing aspect of 1-2-3 is its 3-D work space; this is a useful innovation, although its 3-D data modeling and its approach to spreadsheet linking are limited.

Lotus 1-2-3 takes a distinctive user-



## Spreadsheet Programs

**Table 1: Pros and Cons of Spreadsheet Programs**

|                               |  Pros                                                        |  Cons                            |  Ideal Users                                      |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Claris Resolve 1.0v3          | <ul style="list-style-type: none"> <li>• Powerful scripting.</li> <li>• Easy graphics.</li> <li>• Familiar interface.</li> </ul>              | <ul style="list-style-type: none"> <li>• Tedious limitations during construction of complex documents.</li> </ul> | <ul style="list-style-type: none"> <li>• Complex-application builders and users of other Claris products.</li> </ul>                 |
| Microsoft Excel 3.0           | <ul style="list-style-type: none"> <li>• Quick creation tools.</li> <li>• Easy customization tools.</li> </ul>                                | <ul style="list-style-type: none"> <li>• Cumbersome graphic interface.</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Creators of small ad hoc worksheets and large sophisticated systems.</li> </ul>             |
| Lotus 1-2-3 for Macintosh 1.0 | <ul style="list-style-type: none"> <li>• Dual interface.</li> <li>• Presentation graphics.</li> <li>• Multidimensional work space.</li> </ul> | <ul style="list-style-type: none"> <li>• No Fill Right or Fill Down commands.</li> </ul>                          | <ul style="list-style-type: none"> <li>• Experienced 1-2-3 users, presentation creators, and networked spreadsheet users.</li> </ul> |
| Integrated-software packages  | <ul style="list-style-type: none"> <li>• Best value for casual spreadsheet users.</li> </ul>                                                  | <ul style="list-style-type: none"> <li>• Lack of features for demanding users.</li> </ul>                         | <ul style="list-style-type: none"> <li>• Casual spreadsheet users.</li> </ul>                                                        |

interface approach that some will welcome and others will merely endure. It incorporates two interfaces that you can toggle between: a "classic" 1-2-3 interface that current and former users of PC versions of 1-2-3 already know and a Mac-oriented interface that's more intuitive for new spreadsheet users and experienced Mac users. By letting users instantly switch between the two and mix and match classic Lotus and Mac spreadsheet commands, Lotus has made it easy for

DOS-oriented users to learn the Mac approach at their own pace.

One of 1-2-3's best interface innovations is in-cell editing. You can type either in the data-entry console or directly into individual cells. Not only does this save time and mouse clicks (because you don't need to travel back and forth between the worksheet and the data-entry area) but it also helps you maintain your train of thought when you're modifying complex formulas and other cell contents.

You don't need the console for entering or editing data, so 1-2-3 Mac lets you hide it. In fact, 1-2-3 breaks the various tool-palette elements into a group of windoids you can open and close independently. You can hide and move all the tool palettes to suit yourself, but you'll want to keep as many tools at your fingertips as your screen real estate allows; these tools can really streamline your spreadsheet activity by saving you time you used to spend burrowing through menus to get at frequently used tools.

For example, 1-2-3 keeps a variety of line tools (for controlling dash patterns, line weights, and single- and double-headed arrows, for example) readily available. In Excel, by contrast, there is only one line tool on the tool bar; you must double-click on a

line to change its attributes. In 1-2-3's main control console, you get direct access to its extensive formula library as well as to any named ranges you've created via pop-up menus. (Excel requires you to invoke a menu command and a dialog box.) Another mouse-saving feature is the scroll bar that appears in any text object you're working in.

But the area in which 1-2-3 for the Mac truly shines is in its degree of charting control. Its Graph Ranges dialog box (see Figure 2) takes the guesswork out of specifying which data is to be converted into a chart. To avoid lengthy redraws of complex charts, 1-2-3's Make Icon command reduces complex charts to a small movable, resizable button; you just click on the icon to explode the chart into its full detail. 1-2-3 gives you control over individual chart parts — everything from where to find the text to use in the freely movable legends and titles, to the precise positioning of objects in 3-D charts, down to the placement of light sources and shadows!

1-2-3 Mac charts allow more data series and support more colors than do other versions of 1-2-3. As a result, users of 1-2-3 on other platforms may not be able to view charts generated with 1-2-3 Mac with full fidelity.

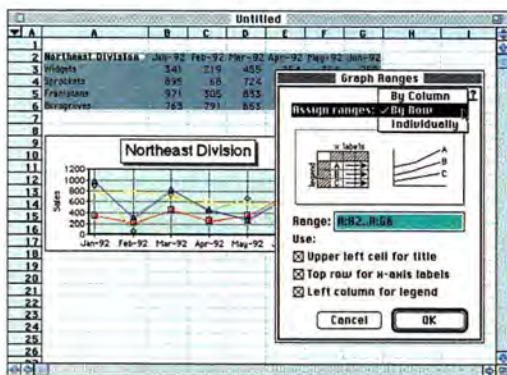
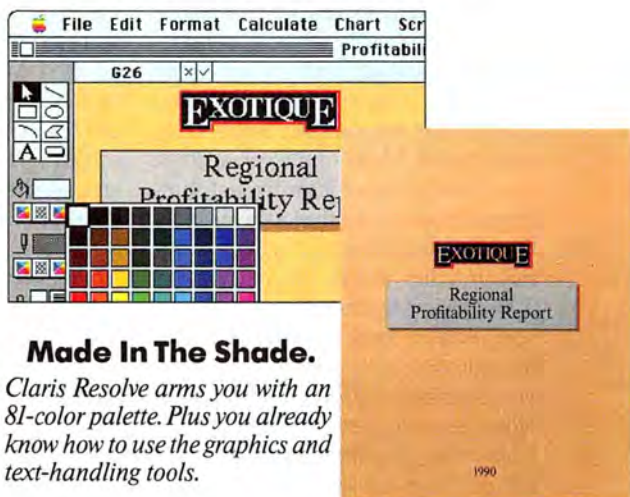
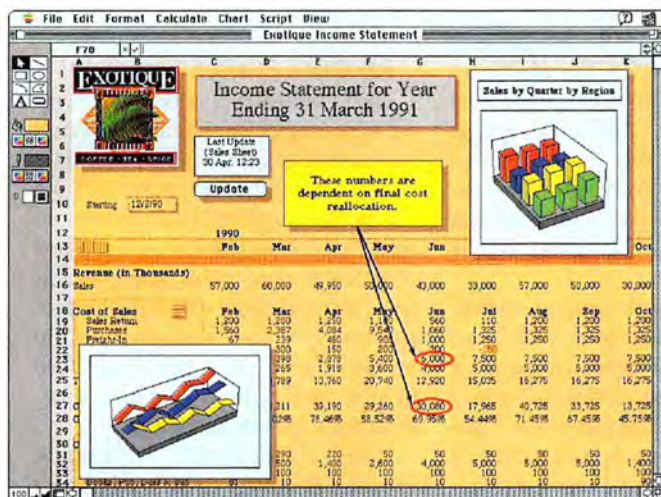


Figure 2: Lotus 1-2-3 for Macintosh has the simplest and most powerful charting interface of all the Mac spreadsheet programs. The Graph Ranges dialog box gives you superb control over how data drives a chart. Notice that the graph range is highlighted in the background to reflect the contents of the Range box.



# The only thing missing from our new spreadsheet is the learning curve.

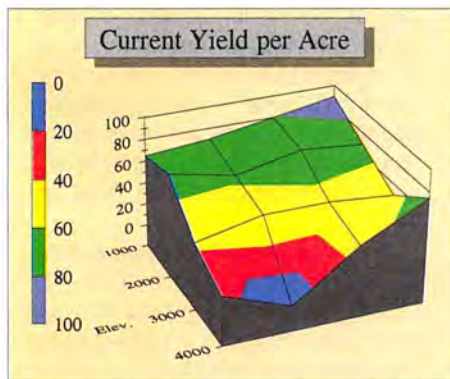


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Still, Claris Resolve 1.1 has more than enough features to inspire any power user. For example, there are 145 built-in functions for solving any business problem; 25 charts and graphs for making any audience sit up and take notice; and the kind of performance that makes Resolve among the fastest spreadsheets anywhere.

Resolve also takes full advantage of System 7. So you can effortlessly combine its power with other applications.

Given all this, it's not surprising Claris Resolve earned 4½ mice from *MacUser*. What is surprising, though, is that it's available for only \$249 through June 30, 1992.

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And get the only spreadsheet that won't make your head spin. Because we left out the learning curve.



Simply powerful software.™



## Spreadsheet Programs

However, if they edit parts of your chart, it won't destroy your data; when you reopen the chart on a Mac, the data will be intact.

Lotus 1-2-3's 3-D worksheet feature (not to be confused with 3-D charting) lets you easily develop consolidated spreadsheet models (see Figure 3). For example, you might have one spreadsheet for tracking sales data, use separate layers of the spreadsheet to record the data for individual sales territories, and have the top layer show the consolidated total for all territories. In other words, you can use the 3-D concept whenever you'd like to keep two or more worksheets separate but associated. You can also keep your macros separate from your main worksheet to prevent your macros from being fractured when users insert or delete rows and columns.

The naming conventions for 3-D cells are the logical extension of conventional A1-style cell naming. (Incidentally, although almost nobody uses the alternative R1C1-style notation, 1-2-3 doesn't even offer that capability.) A 3-D address adds one more letter to identify which worksheet the cell is on: A:A1 is in the upper left corner of worksheet A, and B:A1 is the cell in the same location on

worksheet B. Each lettered worksheet is thought of as one layer of a single spreadsheet.

Similarly, you name a worksheet range by prefixing the cell range with the letter name for that layer. Thus, you can create 3-D cell formulas such as @SUM(A:C4..Z:C4), which returns the sum of all the values of the cell C4 in layers A through Z. If your screen is sufficiently large, you can arrange the layers of your 3-D worksheet in a skewed perspective, so that a few rows of each layer are visible simultaneously.

Users in network settings, where many users need to work with common data, can best appreciate the value of 3-D worksheets. Lotus 1-2-3 also has a sophisticated "reservation" system that manages who can modify a file. It's more flexible than the read-only system used in Excel, but it's also more complicated.

Corporate users who need to connect to FoxBASE or SQL databases will love the connection tools built in to 1-2-3. You can use these external databases in essentially the same way you use 1-2-3's database function. Through Apple's Data Access Language, you can connect to a wide range of databases, and 1-2-3 even provides a means to send SQL commands to the host database. When you create database forms in 1-2-3, you can add simple graphics to them and save them as part of your worksheet. This is different from Excel's approach, in which the form is created on the fly.

One last hit as well as a miss for 1-2-3: First, the hit — 1-2-3 is particularly well suited for small-screen users. Because you can close all of its windoids and use equivalent menu features for virtually everything and because you can directly edit a cell's contents without going to the data-entry area in the console windoid, you can run 1-2-3 Mac on a PowerBook (or a Classic) without wasting a single pixel of screen real estate.

The miss? Although 1-2-3 has some tools for quick spreadsheet creation, it has no direct counterparts to two of

Excel's most often used commands, Fill Right and Fill Down. Although Lotus 1-2-3 lets you use the Clipboard to perform these functions, this approach will frustrate hardened Excel veterans.

### Resolve: A Familiar Newcomer

Claris built Resolve on the powerful spreadsheet engine and scripting language it acquired from Informix's WingZ spreadsheet program (see the "In the Holding Cell" sidebar for more on WingZ) and added an interface with fewer menu items and less clutter. The result is an extremely seductive and easy-to-use product. In the process, however, Claris may have hidden some of Resolve's most powerful features a bit too well.

Resolve's operation is virtually identical to that of the spreadsheet module of Claris' integrated package, ClarisWorks, meaning that Resolve is a painless upgrade for ClarisWorks users. In fact, Resolve's tool palette is similar to that of several other Claris products, and that similarity is intentional (see Figure 4).

More than any other software developer, Claris has embraced the Mac paradigm of consistency across applications. Consequently, users of other Claris software can master the basic elements of Resolve very quickly. For example, Resolve's charting features, like those of WingZ, are easier to use than are those of Excel, although they are less sophisticated than those of 1-2-3.

On the other hand, the minimalism of Resolve's menus results in the illogical and frustrating placement of some commands. It's confounding to find commands that have little to do with formatting — such as auditing commands for selecting precedent and dependent, blank, and unreferenced cells — on the Format menu.

Resolve's more serious limitations emerge when you begin to develop complex models. To create external references, you can't simply start a formula and then point. Instead, you need to type the formula directly, a

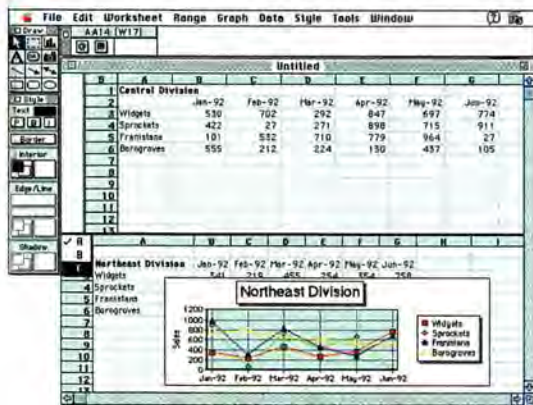


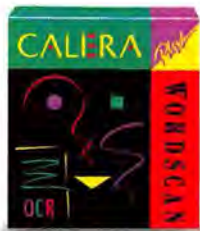
Figure 3: Lotus 1-2-3's multidimensional data capability provides a novel approach to developing consolidated spreadsheet models. Parallel data sets kept in separate layers can be viewed or charted individually or analyzed as an aggregate without the need for confusing spreadsheet-linking commands.



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## Spreadsheet Programs

tedious and error-prone process. And if you want to change linked references to other worksheets, you must use the Find and Replace commands.

Another spreadsheet-building problem appears when you try to insert cells. Resolve always pushes the displaced cells to the right, rather than allowing you to choose whether to push them to the right or down. Additionally, although Resolve offers multiple views and locking titles, it doesn't have split-pane views. And you can't edit the contents of the title region of a Resolve worksheet without turning the titles off.

On the other hand, Resolve handles database definition more efficiently than does its competition, by providing a single dialog box for defining the database range, the criteria range, and the extract range. You can select ranges in the worksheet while the dialog box is open, so you don't have to type the ranges.

Resolve's auto-save feature is also intelligently engineered. It lets you name a backup file and specify the interval at which it's saved. You can use the auto-save feature without overwriting the open file (if you want to keep it as a template, for example) or revert to the last manually saved version if you decide to discard the

### Table 2: Spreadsheet Programs

|            | Claris Resolve<br>1.0v3<br>★★★★½                                                                    | Microsoft Excel<br>3.0<br>★★★★                                                                | Lotus 1-2-3<br>for Macintosh 1.0<br>★★★★½                                                                |
|------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| List price | \$399                                                                                               | \$495                                                                                         | \$495                                                                                                    |
| Company    | Claris Corp.<br>5201 Patrick Henry Dr.<br>P.O. Box 58168<br>Santa Clara, CA 95052<br>(408) 727-8227 | Microsoft Corp.<br>One Microsoft Way<br>Redmond, WA 98052<br>(800) 426-9400<br>(206) 882-8080 | Lotus Development Corp.<br>55 Cambridge Pkwy.<br>Cambridge, MA 02142<br>(800) 688-8320<br>(617) 577-8500 |

changes you've been making.

The real power of Resolve, however, lies in its scripting language. This relatively easy language gives users control over nearly every aspect of the program. Resolve's scripts can do more than merely automate repetitive tasks. With a script of only a few lines, you can easily create a new feature and add it to a new or existing menu or invoke it through on-screen buttons. With a little experience, you can create simple-looking but sophisticated spreadsheet systems for other users, who need never realize they're running a spreadsheet program.

Resolve also supports the use of external programming code in scripts, although you won't find any reference to externals in the standard documentation. Claris has kept Resolve's potentially intimidating developer-level capabilities at arm's length from casual users, although additional documentation is available on request.

### The Bottom Line


So how do you choose the right spreadsheet program from this field of feature-rich competitors, any of which can probably get the job done, one way or another? Performance and speed tests aren't likely to help you make your decision; our testing revealed such widely varying results, depending on the specific task, that it provides no useful guidance.

But despite the similarities of all these spreadsheet programs, making the right choice may be surprisingly easy (see Table 1). The easiest choice is for those who need full compatibility with Lotus' products on other

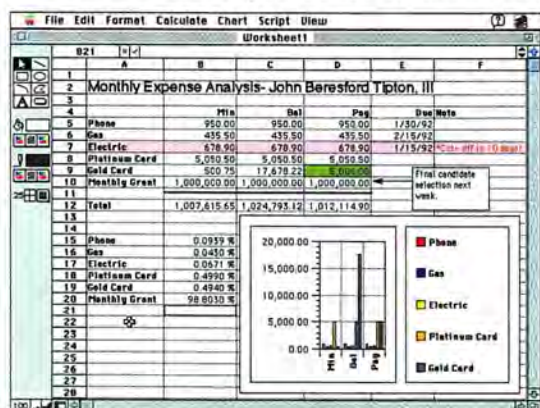
platforms. Lotus 1-2-3 for Macintosh is the obvious best bet, one that won't disappoint. It also offers more control over graphics than do the other packages (although not as much as a dedicated graphing and charting package would) and lets you choose the interface you may already know from experience with 1-2-3 on other platforms.

Excel 3.0 remains the overall favorite, however, thanks to its numerous subtle refinements for speedy spreadsheet building and the depth of its macro language and customization tools. Excel does an admirable job of balancing power (for large corporate modelers and custom-application developers) with usability (for novice users and for those doing quick-and-dirty projects).

Resolve and 1-2-3 offer the best data-presentation and charting tools; Resolve is a bit easier for simple graphics, whereas 1-2-3 offers a higher degree of control. Excel and Resolve offer the best tools for building custom applications; here, however, Resolve offers the finer level of control, and Excel has the best tools for simple customization jobs.

Don't get caught up in the spreadsheet frenzy, though. For straightforward spreadsheet tasks, an integrated application may well provide all the power and features you'll ever need. If you opt for ClarisWorks, you'll have the option of a seamless growth path to Resolve if you ever outgrow ClarisWorks' spreadsheet module. 

**Louis E. Benjamin, Jr.,** knows everything there is to know about rows and columns. Jon Zilber usually sticks to columns.



**Figure 4:** Resolve's look and feel closely matches that of several other Claris products. Resolve keeps many basic worksheet functions (such as controls for color and graphics) accessible, making it easy to create spreadsheet-generated presentation graphics quickly.





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# 7 REASONS WHY YOU NEED A NEW WORD PROCESSOR.



**Because you're ready to see what System 7 can do.**

Apple calls System 7 the biggest improvement in Macintosh since Macintosh. And WordPerfect® is now System 7 savvy.

So now (among lots of other new things), WordPerfect will automatically keep track of changes that you (or someone else) might make to imported files (charts, graphics, whatever), and update your WP documents accordingly. Now, a change made in one place can be a change made in many places. Apple calls it "Publish and Subscribe," and it works between programs on your hard drive, as well as among people on

your network. Publish and Subscribe assures you that your documents will always reflect the latest information available.

And it's just one of the new System 7 tricks that WordPerfect 2.1 has mastered.

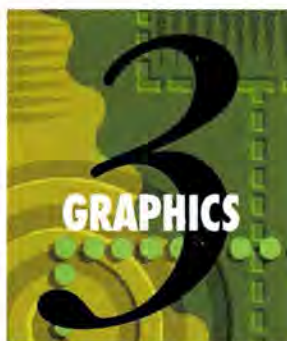


**Because WordPerfect does columns better than the Greeks.**

Pick a starting point, click on the ruler, and see your text in two columns. Or in three columns. Or five columns. With vertical rules beside or between them, if you like. Drag a guide on the ruler and try *unequal* columns. Highlight text in a box that jumps across columns.

Go crazy with the design, or stick with the tried-and-true.

The point is, WordPerfect gives you formatting options that other word processors don't. And exploring them couldn't be much easier.



**Because you'd use more graphics if using them were easy.**

WordPerfect not only gives you full control over the placement of graphics in your text, it also gives you a color drawing program for modifying imported artwork (or starting over from scratch) without ever leaving the program.

You can print graphics under your text (as "water-

marks") or on top (as overlays).

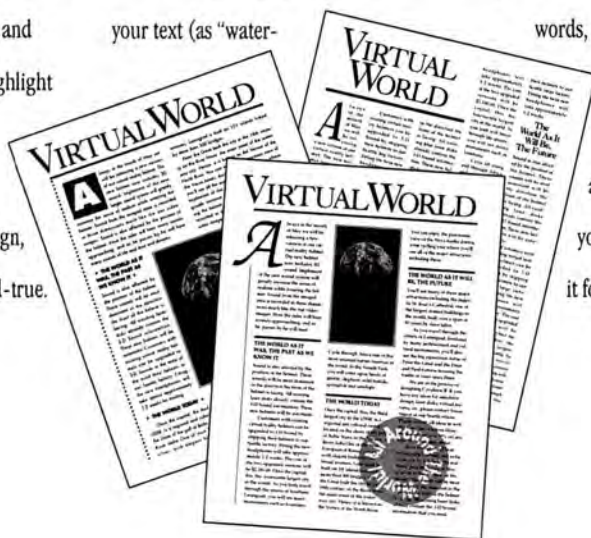
You can use the drawing tools to rotate text to any angle that strikes your fancy (something many page-layout programs still can't do).

And WordPerfect gives you 36 border styles and 64 fill patterns — which you can use in any of 256 colors — for highlighting graphics, paragraphs, columns, pages, even blocks of text.



**Because a movie is worth who-knows-how-many words.**

If a picture is worth a thousand words, what's a movie worth? With WordPerfect and QuickTime, you can calculate it for yourself.





Apple's QuickTime is a new technology that lets you work with digital video and sound as easily as you now work with text and graphics files.

Imagine being able to place (and size) a QuickTime movie anywhere in a document. You could add urgency to a memo with a few well-chosen words delivered "live." Or help an audience visualize your latest brainstorm with a 3-D simulation they can start, stop and replay.

We have a feeling that words can't begin to describe all the ways you'll think of to use it.



**Because you get tired of repeating yourself, yourself, yourself.**

Perhaps because they've heard it's a powerful programming

language, WordPerfect's macro editor intimidates some people at first. It shouldn't.

It's no more complicated than a tape recorder. Click "record" and it memorizes your keystrokes. Click "play" and it repeats them.

With no more knowledge than that, you can create a WordPerfect macro. And can spare yourself the effort of formatting M-E-M-O-R-A-N-D-U-M, T-O-, F-R-O-M: (and so on) across the top of the page every time you want to fire off a memo, for example.

But simple as recording your own macros can be, we also ship a number of them with the program. For formatting addresses to print on envelopes. Placing "drop caps" at the start of paragraphs. And other jobs you'd rather not do twice.



**Because some people work on DOS computers.**

You want the word processor that's right for you. If your choice happens also to be the choice of millions of others — with other computers — so much the better.

That's why WordPerfect is such a good choice. Lots of DOS users use WordPerfect. As well as UNIX, VMS and other users. If you ever find your Mac on a network with other computers,

WordPerfect's compatibility can save you a lot of aggravation. Not to mention a lot of reformatting.



**Because even if you never call us, it's nice to know we're here.**

Like any good Mac program, WordPerfect 2.1 is easy to use. But unlike many Mac programs, you're not on your own with it. You get

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# Swiss-Army Software

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*If you want all your  
applications in a single  
package, you don't have  
to compromise anymore.*

---

**I**n one of James Coburn's Flint spy-spoof movies, Flint brags that his cigarette lighter has 47 uses — "48 if you want to light a cigarette." The kind of thinking that went into Flint's cigarette lighter has often seduced software designers as well. After all, the perfect application would be a single program that did everything. Unfortunately, this Swiss-army-knife approach has usually meant serious compromises in functionality. But with the advent of the Classic, LC, and PowerBook, integrated programs that combine most of the basic functions users need into a single, compact, and inexpensive package have become increasingly attractive.

Typically, integrated packages include word-processing, spreadsheet (with charting), database, and telecommunications modules and some form of graphics capability. You also

BY TED LANDAU









## Integrated Software

generally get a consistent interface across the modules and the ability to transfer data among them.

This last advantage may not seem very significant. After all, almost any Mac software can transfer data via the Clipboard. And with System 7's publish-and-subscribe, you can create active links among documents. But these methods of transferring data aren't as fast or convenient as are the data links in a good integrated package. The degree of integration is what distinguishes each of these packages from the others, which is why we placed great emphasis on it in our evaluations. It's what makes well-designed integrated software something more than just several separate programs held together by the electronic equivalent of rubber bands and paper clips.

The individual modules in an integrated package aren't as complete or as powerful as are their stand-alone equivalents, however. No graphic artist, for example, will be satisfied with the drawing or painting tools available in even the best integrated package. But despite these limitations, today's top integrated packages are much more than novices' tools.

Spurred on by a resurgence of interest in this category, four companies have announced new integrated packages within the last year and a fifth is putting its integrated product through a major overhaul.

### What's Working Now?

For several years, Microsoft Works was the lone entry in the field. Without the spur of competition, Microsoft had little reason to improve the product, but now Works is feeling the heat.

By today's standards, Microsoft Works 2.0 is burdened with a barely adequate word processor that lacks true headers and footers, column formatting, footnotes, and more. Charts are limited to black-and-white. The database module is embarrassingly weak, with no provision for multiline fields and no way to include graphics anywhere in a record, either in a field or in the background. You also can't

make font changes to individual fields or cells in either the database or the spreadsheet module. Works 2.0 does have a strong spreadsheet module, and it was the first integrated package to have a drawing function available in every module. But that's not enough.

Microsoft is readying its response to its challengers: Works 3.0. Because of the impending release of this new version, we did not evaluate Works 2.0 in our comparisons.

Also not released in time to be included in this review was Beagle Bros' BeagleWorks. Beagle Bros is relatively new to the Mac market but not to integrated-software development.

## In the Works

By the time you read this, the integrated-software market will have two new competitors. BeagleWorks and Microsoft Works 3.0 represent opposite ends of the spectrum: a brand-new package and a long-awaited upgrade to an old favorite. We looked at prerelease copies of each; here are our initial reactions.

### BeagleWorks

BeagleWorks can dazzle you with its range of features and creative approach to integration, but it can just as easily disappoint you with some surprisingly lackluster efforts.

BeagleWorks' word processor falls into the dazzle category. It starts with all the major features of GreatWorks and ClarisWorks. From there, it adds such high-end extras as paragraph style sheets and multiple headers and footers. You can make text run around graphic objects, either rectangularly or along the contours of the

It was the original developer of AppleWorks, for the Apple IIe. (See the "In the Works" sidebar for a preview of BeagleWorks and Works 3.0.)

The three packages we evaluate here are MacVONK's HandiWorks 1.0, Symantec's GreatWorks (already upgraded to version 2.0), and Claris' ClarisWorks 1.0. (See February '92, page 48, and March '92, page 44, for individual reviews of GreatWorks 1.01 and ClarisWorks, respectively.)

### HandiWorks

HandiWorks pushes the concept of frames to its limit. There are no separate modules in HandiWorks. All data

object. Section formatting lets you divide a document so that, for example, the number of columns can vary, even on the same page. There is no footnoting, but that is one of very few omissions.

The spreadsheet module is similarly impressive. You can edit data directly in a cell, and there's an auto-sum tool and an option for attaching notes to cells.

In contrast to all this, BeagleWorks' database module is so bare bones that it reminds you of Works 2.0's—that's not a compliment. Fields are limited to a single line, and you can't move field titles independently. Browsing and forms design can be done only in the same mode, and the report-generating functions are so weak as to be almost absent.

Charting is another disappointment. Charts are placed directly in the drawing module as PICT objects, so they don't automatically update when the data changes.

**Figure A: BeagleWorks easily handles the irregular text runaround of the map. Section breaks were used for shifting from one-column headings to two-column text. The map, created with a customized version of publish-and-subscribe, can be edited from within the word processor. Just double-click on the map, and the painting tools appear.**





is entered via frames and placed on a single document type. A derivative of RagTime, MacVONK's desktop-publishing application, HandiWorks has the look and feel of a page-layout program (see Figure 1). Although this approach has some obvious advantages when you're creating page layouts, it doesn't work well for the tasks more commonly associated with integrated software.

When you click within a frame, the contents of the menu bar and a separate tool bar (beneath the menu bar) change to reflect the options available for that frame type. When you're not within a frame, the tool bar changes to

the Frame Editor level, where you can create, move, or resize frames and apply drawing tools. HandiWorks' drawing tools are very basic, primarily limited to creating lines and frame borders.

Among the current integrated packages, HandiWorks has the narrowest range of functions, with a choice of only three types of frames: text, spreadsheet, and picture. The spreadsheet frame does not include charting. The picture frame is designed primarily to receive imported graphics — it has options for tinting graphics but doesn't have any editing tools.

In lieu of a database function,

HandiWorks provides Address Manager, a separate address-book and phone-dialing DA (see Figure 2). Although Address Manager is partially integrated with the main application via the spreadsheet frames, its DA format detracts from HandiWorks' otherwise unified approach. Address Manager can't compete with the more-full-featured database modules in ClarisWorks and GreatWorks, but it has the advantage of being accessible even when HandiWorks is not open.

The real problem with HandiWorks is not so much its lack of features as its awkward implementation of many of them. For example, although linked

Still worse, when you manually update a chart, any enhancements you may have created with the drawing tools are deleted, even if you've saved the document.

Between these extremes of dazzle and disappointment are BeagleWorks' drawing and painting modules, each of which supports an editable 256-color palette, and the communications module, which is based on Apple's Communication Toolbox.

To link all these modules, BeagleWorks again dazzles you, with an enhanced version of publish-and-subscribe — one that runs even under System 6. The most significant enhancement is that you can edit subscribing frames in context, without needing to return to, save, or even open the publishing document. You can also directly create a subscriber frame via BeagleWorks' click-and-drag frame tool, bypassing the normal multistep publish-and-subscribe procedures. This gives BeagleWorks' linking much of the feel of ClarisWorks' frames. BeagleWorks' main limitation here is the same as that in GreatWorks — the word processor has no publish capability.

Speaking of text, the text tool in the drawing module is another BeagleWorks weak spot. Text boxes can't be linked, formatting changes always affect the entire text, and it doesn't have the word processor's text-runaround options. Also, BeagleWorks' drawing tools aren't available across modules. In general, BeagleWorks isn't well suited for complex page layouts.

On balance, BeagleWorks is an exciting program with some unique and innovative

features, but it needs to repair its more glaring weaknesses before we would rank it as a top contender.

#### Microsoft Works 3.0

For the legions of Microsoft Works 2.0 users who have been impatiently waiting for a major upgrade, Microsoft Works 3.0 will be good news. This version features dozens of improvements and additions.

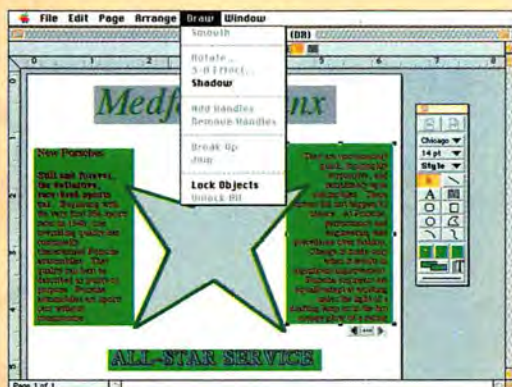
The major highlight is a much expanded tool palette that's accessible in every module except the communications module. Its functions vary, depending on the module in use. New navigation buttons facilitate snaking through a series of linked columns. There is now a separate drawing module, featuring several new options, such as 3-D Effect. However, some basic drawing options, such as object alignment, remain inadequate.

The word processor now has character styles, footnotes, and true headers and

footers, and a thesaurus has been added. Charts now display in color. Both the spreadsheet module and the database module now permit separate formatting for individual cells and fields. The database module has been overhauled, with multiple line fields and as many as 16 forms per document. Unfortunately, it still depends on a spreadsheetlike data-entry bar, and reports seemed just as hard to construct as ever.

What has not been significantly enhanced is the modules' ability to share data. All of the competing programs do a better job of this. Aside from Works' tool palette, there are no functions for linking or transferring data among the modules. Works provides neither publish-and-subscribe nor ClarisWorks' extensive frame capability, so you're stuck with cutting and pasting. The lack of integration is a major omission in what otherwise promises to be a solid upgrade.

**Figure B: Microsoft Works 3.0** boasts a host of new features. The expanded tool palette has options that let you select font type, size, and style. The menu displayed here lists some of the new drawing module's added features, such as 3-D Effect. The buttons below the right-hand text frame are Works' new navigation tool, for quickly moving through linked columns.





Anything  
else  
is  
just  
work.

CLARIS



**ClarisWorks**

*The new #1 choice for Macintosh integrated software.*

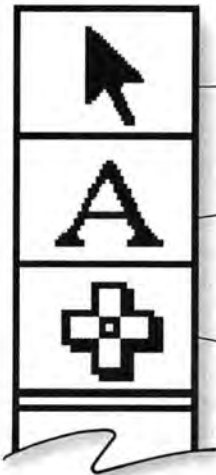


This is exactly the way you wanted Macintosh to be.

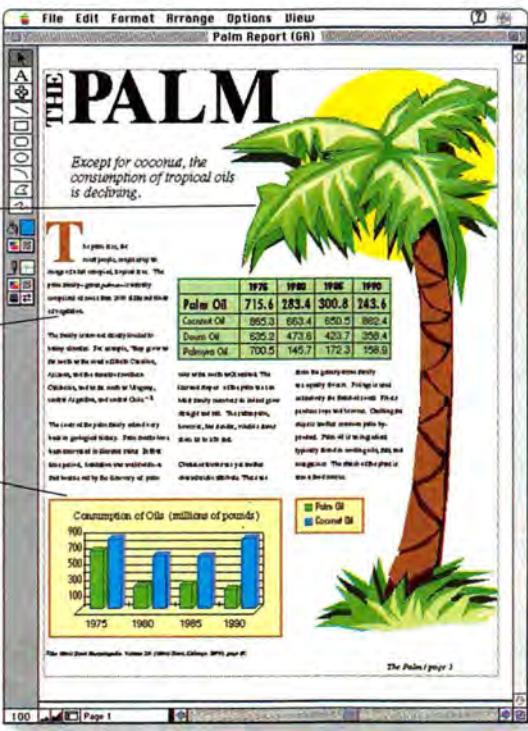
The power to effortlessly create documents with words, graphics, spreadsheets, and charts. Without running your mouse through a maze of modules.



ClarisWorks pulls out all the stops with a level of integration that's finally seamless. justifiably call a genuine breakthrough.



From within a text document, you can click on the graphics tool and start drawing. Or click on the spreadsheet tool and create a spreadsheet right in the middle of your document. Whatever tool you select, its menu bar appears at the top.



It's an arrangement that, unlike anything else, produces more with far fewer moves.



A truly robust integrated package for fully exercising your options in word processing, graphics, spreadsheets, charting, database, and communications.

Not only are ClarisWorks tools always within easy reach, they're amazingly easy to grasp and handle. It's like getting our greatest hits—the most popular features of our leading MacWrite®, MacDraw®, FileMaker®, and Resolve™ programs. ClarisWorks also doesn't hog RAM. Remaining nimble and quick on Classics and LCs and keeping portables, portable.

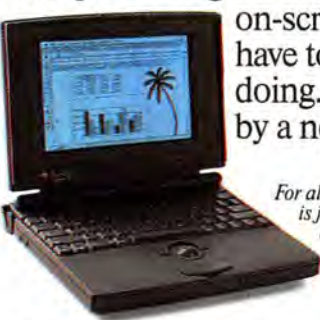
It's even remarkably simple to share anything you create. With our XTND technology, ClarisWorks can read and write to dozens of popular file formats, like AppleWorks™, PICT, MacWrite II, and Microsoft Works.

Last, but certainly not least, ClarisWorks is a program you can build on. The menus and commands in each ClarisWorks environment mirror those in our best-selling specialized programs. Enabling you to move to any one of them without starting over at square one. Which makes ClarisWorks the only

Though we simply call it ClarisWorks.™

What ClarisWorks software does is combine word processing, graphics, spreadsheet, charting, database, and communications in one convenient package.

But here's the big difference: To add graphics, say, or a spreadsheet or a chart to a word processing document, simply click the on-screen tool. You never have to leave what you're doing. Or get side-tracked by a new window.



For all its power, ClarisWorks is just 580K. So it never weighs down a PowerBook.

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## Integrated Software

text columns can be created automatically, this convenience is offset by the fact that you cannot select a text block that spans across columns, which means that you can never cut and paste or change the font characteristics of more than one column of text at a time. Similarly, in many documents, new pages are not added automatically as you type. The only way around this is to create a stationery "form" document with text frames linked via a special circular link. When you open a document based on this form, new pages will be added automatically. Whew!

HandiWorks' mail-merge function is so obtuse that it could serve as a lesson in how *not* to design software. Mail-merge statements cannot be placed directly in word-processing text. Instead, you have to create a spreadsheet frame and paste Address Manager-function statements into the cells in which you want the address to appear. For each statement, you must also fill in an argument based on numerical labels assigned to each Address Manager field. The process is too arcane to explain. Suffice it to say, intuitive it isn't.

HandiWorks' word-processing and spreadsheet functions, although adequate, are missing some typical features. For example, the word processor cannot create headers or footers and the spreadsheet function has no Fill Right or Fill Down commands.

On a positive note, HandiWorks stands out from the rest as the only package in which you can run text around the borders of an adjacent frame. In GreatWorks and ClarisWorks, a frame simply overlaps existing text, making it significantly more difficult to lay out a document. HandiWorks can also mimic ClarisWorks' trick of linking spreadsheet frames to each other, but HandiWorks' procedure is much less convenient.

Even at a bargain price, HandiWorks is no bargain. Given its awkward interface and limited feature set, there's no reason to consider this package.

### GreatWorks

For sheer numbers, GreatWorks holds the lead with more modules than any of the other packages: eight — word processing, outlining, spreadsheet, charting, database, drawing,

painting, and communications modules. The individual modules are also the most powerful of any in an integrated package, but they are the least integrated. GreatWorks 2.0 is much better in this respect than was its predecessor, however.

For data integration, GreatWorks supports System 7's publish-and-subscribe, which isn't an ideal solution. Publish-and-subscribe was designed more as a means of linking independent applications than as a way to integrate modules. Publish-and-subscribe's multistep method, which requires separate edition files for each data link and doesn't let you edit linked data from the subscriber, makes it a less than perfect choice for integrated programs that should be able to share information among modules seamlessly. A further inconvenience is that Symantec disabled the publishing command for word processing and outline processing (see Figure 3). However, you can often work around this limitation by using the text tool to place text frames, which can be selected for publishing.

The individual modules, already more than adequate in version 1.0, are

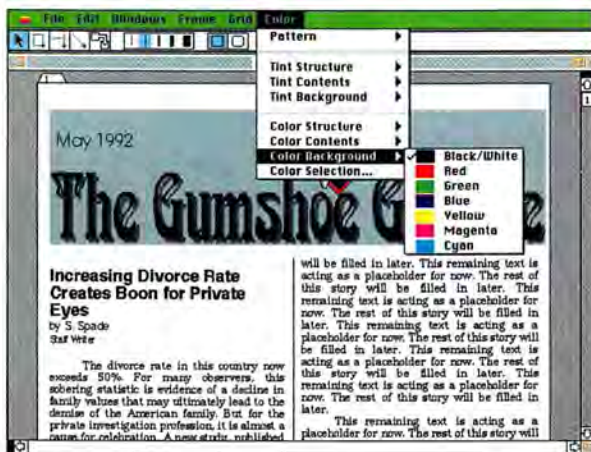


Figure 1: HandiWorks is at its best when you use it for page layout. The pipelined text columns, complete with vertical rule, were quick and easy to create. An entire menu of options lets you tint the background of the title bar. However, only a very limited selection of drawing tools is available from HandiWorks' tool bar.

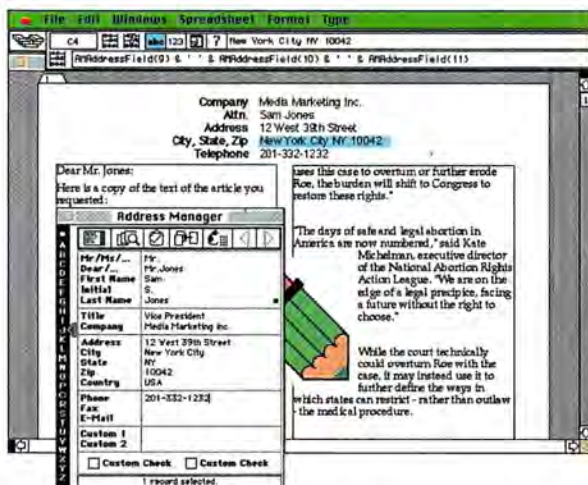
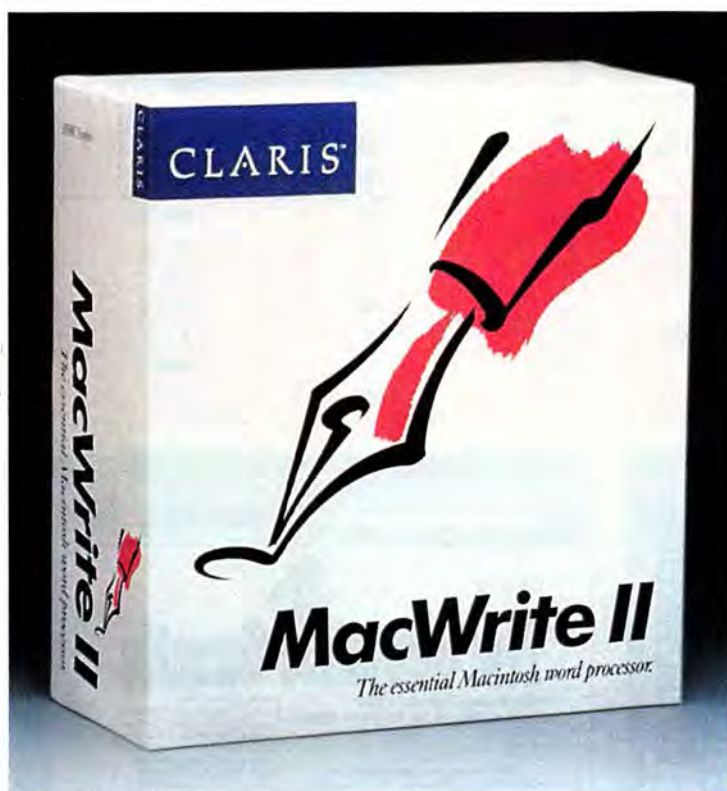


Figure 2: HandiWorks often makes things more difficult than they need to be. Here, the highlighted address text is actually part of a spreadsheet frame. Function statements (see the tool bar) are used to retrieve the data from the separate Address Manager DA. On the plus side, text can be made to run around objects such as the pencil shown here.



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even better in version 2.0. GreatWorks' drawing tools are outstanding for an integrated-software package. The new tool set, which includes gradient fills and Bézier curves, is accessible in the word-processing, outlining, and spreadsheet modules. The painting module works in color (8-bit, 256 colors) and includes a spray can. You can edit any of the tools, such as the color-selection, gradient, and pattern tools.

The word processor includes such niceties as character-style settings, tab fills, paragraph spacing, and an unequal-width option for column settings (see Figure 4). A new envelope-printing function eliminates the need for a separate DA for accomplishing this common task, but GreatWorks lets you store only a single return address at a time, so you can't switch between a home and a business address when printing a batch of envelopes, for example.

The FileMaker Pro-like database module, although somewhat weak on reporting functions, is the only database program of the group that has a Picture field. The spreadsheet module is satisfactory, with individual-cell formatting, borders, adjustable row heights, and freeze titles.

You can choose from a variety of

**Table 1: Rated Features of Integrated Software**

|                                                 | ClarisWorks 1.0 | GreatWorks 2.0 | HandiWorks 1.0 |
|-------------------------------------------------|-----------------|----------------|----------------|
| ■ = poor<br>■■ = average<br>■■■ = above average |                 |                |                |
| Integration                                     | ■■■             | ■■             | ■■             |
| Charting                                        | ■■              | ■■■            | none           |
| Communications                                  | ■               | ■              | none           |
| Database                                        | ■■■             | ■■             | ■              |
| Report creation                                 | ■■              | ■              | none           |
| Data entry                                      | ■■              | ■■             | ■■             |
| Data manipulation                               | ■■              | ■■             | ■              |
| Forms design                                    | ■■■             | ■■■            | none           |
| Drawing                                         | ■■              | ■■■            | ■              |
| Spreadsheet                                     | ■■■             | ■■■            | ■■             |
| Data entry                                      | ■■■             | ■■             | ■              |
| Data formatting                                 | ■■■             | ■■■            | ■■             |
| Numerical manipulation                          | ■■              | ■■             | ■■■            |
| Word-processor                                  | ■■              | ■■■            | ■              |
| Columns                                         | ■■              | ■■■            | ■              |
| Footnotes                                       | ■■              | none           | none           |
| Headers and footers                             | ■■              | ■■■            | none           |
| Mail-merge                                      | ■■■             | ■■             | ■              |
| Other features                                  | ■■■             | ■■             | ■■             |
| Linked text frames                              | ■■              | none           | ■              |
| Macro capability                                | ■               | none           | none           |
| On-line help                                    | ■■              | ■■             | none           |
| Spelling checker                                | ■               | ■■             | ■              |
| Split panes                                     | ■■              | none           | ■■■            |
| Thesaurus                                       | ■■              | ■■             | none           |

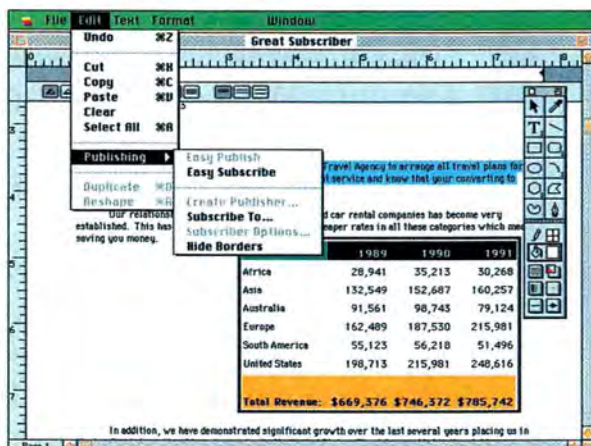


Figure 3: GreatWorks can link data via publish-and-subscribe. It's used here to insert the revenues table from a spreadsheet. But not all of its modules fully support this function. For example, the menu shows that the word processor doesn't support publishing.



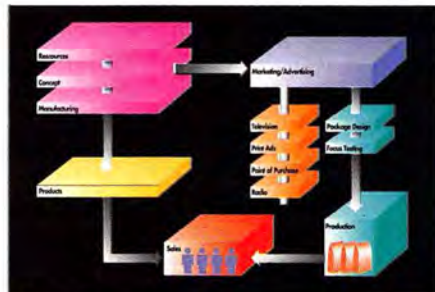
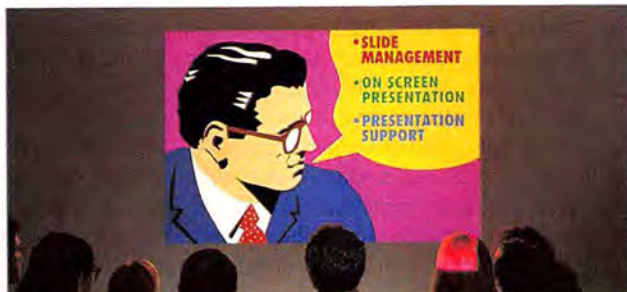
Figure 4: Because GreatWorks doesn't support linked text frames, we had to use the columns function in the word processor to create this layout. Still, this feature permits unequal column widths and automatically inserts the vertical rule. The title bar has to be placed in a header.



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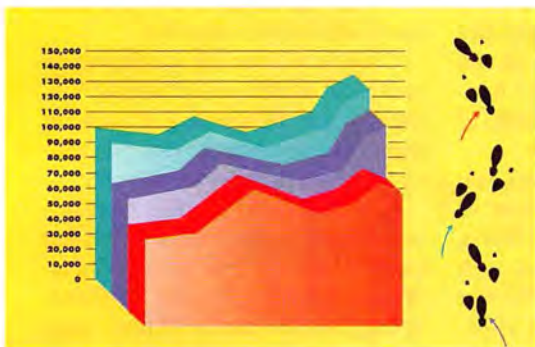
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## Integrated Software

chart types as well as import graphics to create picture charts, à la *USA Today*. Charts automatically update whenever the spreadsheet data changes.

Symantec deserves credit for quickly upgrading and improving GreatWorks. It's still not the best of the lot, but it's now a more than respectable second to ClarisWorks.

### ClarisWorks

ClarisWorks differs from the other integrated packages, in that it lets you choose how you want to work. It's divided into five "application environments": word processing, spreadsheet, database, communications, and drawing. These environments can work relatively independently or in a completely integrated fashion through frames. Using frames, you can use the functions of several environments in combination to create a single compound document.

Frames are ClarisWorks' strongest feature (see Figure 5). You create them with the frame tools in ClarisWorks' tool palette. In addition to the drawing tools you'd expect in a palette, ClarisWorks has a text-frame tool and a spreadsheet-frame tool.

With these frame tools, you can insert a spreadsheet frame into a word-processing document, which does more than just establish a link between two documents; it also makes the actual spreadsheet environment—and all of its commands—available from within the word processor. When you click within the spreadsheet frame, the word-processor menus change to reflect those of the spreadsheet. Click outside the frame, and you can move or resize the frame as you can any other graphic object. Because any data inside a frame is embedded in the compound document, you don't have to worry about updating the data, as you do when you cut and paste.

With ClarisWorks' text frames, you can create separate text sidebars or add labeling to a chart. GreatWorks also provides text frames, and each program gives you access to the text ruler from within a text frame. However, ClarisWorks goes one step further by actually giving you the word-processing environment in every text frame. Also, ClarisWorks' text frames can be linked so that text can flow from one frame to the next, a feature that's common in desktop-publishing programs (see Figure 6). ClarisWorks

similarly lets you import text from another document directly into a frame, bypassing cut and paste. GreatWorks lacks frame linking as well as data-insertion capabilities.

ClarisWorks' frames are easy to master, and they can be used to create surprisingly sophisticated layouts. Even spreadsheet frames can be linked within a file, with data entered into one frame causing changes in another. The only drawback of frames is that they can't be linked to data in a separate ClarisWorks document.

ClarisWorks menus are extremely consistent across environments. The location and the meaning of common menu items remains the same, no matter which environment you're in.

In a module-by-module comparison, ClarisWorks trails a bit behind GreatWorks. In particular, ClarisWorks is missing several of GreatWorks' text-formatting options, such as custom character styles, and graphics tools, such as Bézier curves. However, ClarisWorks' environments are all capable performers and contain some features not found in GreatWorks. For example, ClarisWorks' word processor has footnoting, its spreadsheet environment has a Paste

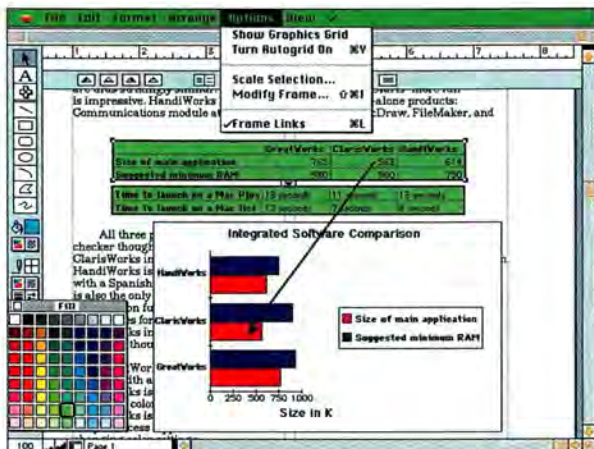


Figure 5: ClarisWorks excels at frame linking; it can link spreadsheet frames as well as text frames. Here, the two spreadsheet frames are part of the same table and are linked. The chart, a separate frame, is also linked to the table data. Changes in any one of the frames are instantly reflected in the others.



Figure 6: Here's the same newsletter, this time made with ClarisWorks. Created in the drawing environment, the text was directly imported into linked text-frame columns, but the alignment and sizing of the columns and the placement and creation of the vertical rule all had to be done manually. Tinting the title-bar background, easily accomplished here, could not be done in GreatWorks.



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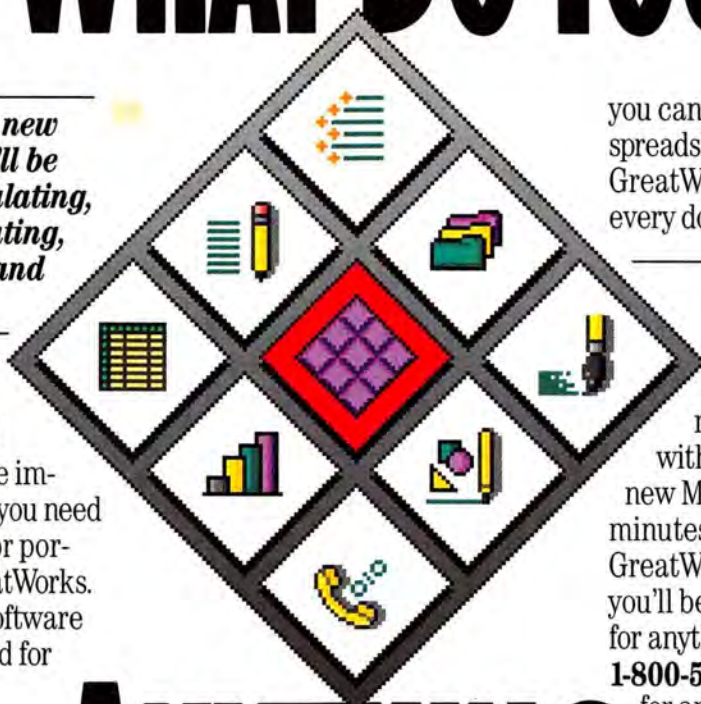
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## Integrated Software

**Table 2: Integrated Software**

|            | ClarisWorks 1.0<br>★★★★½                                                                                                                                                              | GreatWorks 2.0<br>★★★★                                                                                 | HandiWorks 1.0<br>★★                                                      |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| List price | \$299                                                                                                                                                                                 | \$299                                                                                                  | \$175                                                                     |
| Pros       | •Excellent integration.                                                                                                                                                               | •Most-powerful modules.<br>•Includes painting and outlining modules.                                   | •Text wraps around frames.                                                |
| Cons       | •Text can't wrap around frames.<br>•No frame tool in database module.<br>•Spelling checker can't check selected text.<br>•No direct file compatibility with FileMaker Pro or Resolve. | •Integration through publish-and-subscribe only.<br>•Text can't wrap around frames.<br>•No footnoting. | •No charting or true database module.<br>•Poor interface.                 |
| Company    | Claris Corp.<br>5201 Patrick Henry Dr.<br>P.O. Box 58168<br>Santa Clara, CA 95052<br>(408) 727-8227                                                                                   | Symantec Corp.<br>10201 Torre Ave.<br>Cupertino, CA 95014<br>(800) 441-7234<br>(408) 253-9600          | MacVONK-USA East<br>313 Iona Ave.<br>Narberth, PA 19072<br>(215) 660-0606 |

Special command and can create 3-D bar charts as well as exploding pie charts, and its database program lets you subtotal by groups.

Another advantage of ClarisWorks' environments is their similarity to Claris' stand-alone products (FileMaker Pro, MacDraw Pro, MacWrite II, and Resolve). Although there is a Claris-interface upgrade path, there isn't a corresponding data upgrade path. ClarisWorks can't read or write FileMaker Pro or Resolve files directly (you have to go through an intermediate format such as SYLK), so for the moment, it's a hassle to move up to a dedicated application. Still, ClarisWorks' completeness and tight integration make it the best package of the lot.

### Common Ground

Both GreatWorks' and ClarisWorks' communications modules are based on Apple's Communication Toolbox and are thus strikingly similar. Neither one is impressive. HandiWorks has no communications module at all.

All three packages have a spelling checker; GreatWorks and ClarisWorks

also include a thesaurus. HandiWorks is the only package with automatic hyphenation, including hyphenation dictionaries in 12 languages! Only ClarisWorks includes a macro recorder, but it doesn't let you edit the macros, so referencing your macros isn't easy.

GreatWorks has excellent color capability, supporting an editable 256-color palette. ClarisWorks supports 81 colors in a noneditable palette. HandiWorks has editable colors, but it lets you access only 8 at a time.

GreatWorks and ClarisWorks use Claris' XTND technology for file translation and come with a wide range of translator files. The XTND translators easily handle most common text and graphics formats but are weaker at translating spreadsheet and database files. HandiWorks ships with a limited set of translators for common word processors, SYLK files, and standard graphics formats. It also supports XTND translators, but it doesn't ship with any.

All three packages support System 7's Balloon Help. GreatWorks and ClarisWorks also have on-line HyperCard-based help systems.

### The Bottom Line

ClarisWorks is a standout in almost every area of consideration. It's flexible, giving users the option of choosing between a modular and a frame-based approach; it's easy to use, with an unsurpassed ability to integrate spreadsheets, charts, graphics, and linked text frames into a single document; and it's powerful enough to contain almost all the commonly used features of stand-alone competitors.

With its expanded tool palette and improved menu structure, GreatWorks now competes seriously with ClarisWorks. It has the strongest set of modules, with exceptionally rich drawing and word-processing features as well as painting and outlining modules, which are not even present in the other programs. Its major drawback is its use of publish-and-subscribe; it can't equal ClarisWorks' frames approach.

We can confidently recommend either of these products. The choice between them will ultimately depend on the weight you give to GreatWorks for its generally stronger modules versus the weight you give to ClarisWorks for its superior integration. On balance, we give the nod to ClarisWorks.

HandiWorks is a package that's best avoided. Its nonmodular page-layout approach might be refreshing — if it worked. Unfortunately, HandiWorks' interface comes across as cumbersome and occasionally even downright annoying. It also lacks the range of features of the competition, with no charting or communication functions, a weak and nonintegrated database module, and basic drawing tools.

Integrated software has been attractive because of its simplicity: one size fits all. Although their individual modules won't displace dedicated applications such as Word and Excel, ClarisWorks and GreatWorks prove that integrated software doesn't have to mean compromised software. ☐

**Ted Landau** is a professor of psychology at Oakland University, in Rochester, Michigan. A frequent contributor to *MacUser*, he is currently working on a book on Macintosh problem solving.



#### Application

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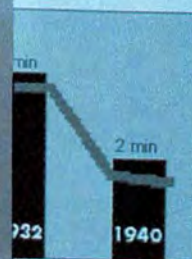
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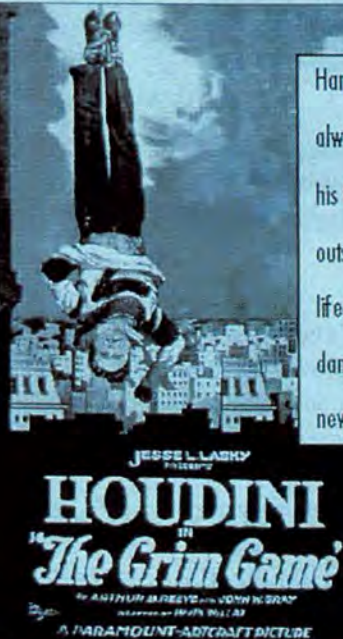
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# Database Strategies: Relational Databases

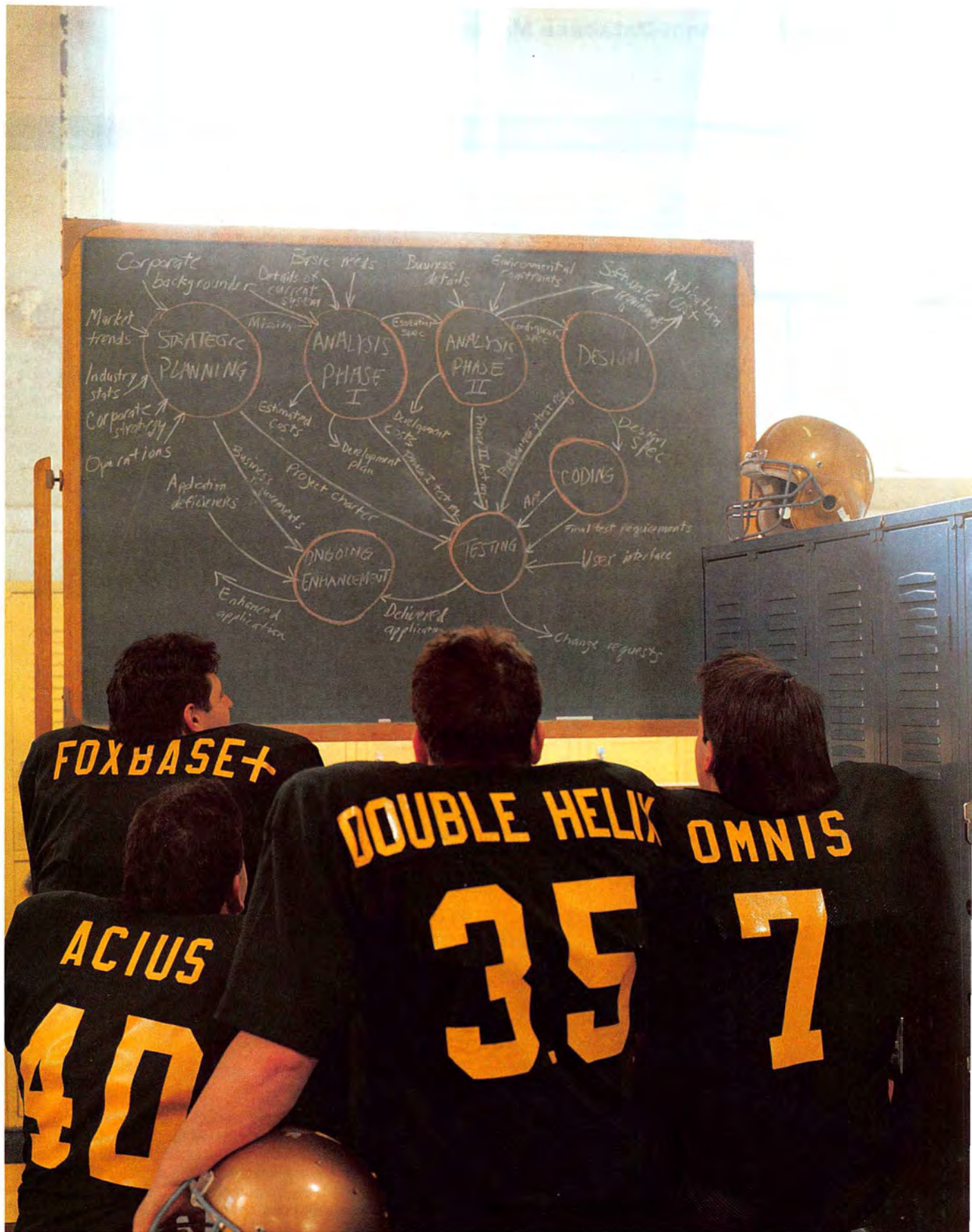
*Four Mac relational-database-management programs give you powerful access to information — but how easily do they do it?*

Information is as important to the success of a business as any other asset on the balance sheet. And providing the power that comes from managing information as a strategic tool is what database-management systems are all about. Most individual users and many small businesses don't need anything more than a *flat-file* database manager, such as Panorama or FileMaker Pro, for managing their information (see "Everyday Databases," February '92, page 110). But if your business relies on large, complex collections of information, you'll find that the *cross-referencing* capability of a relational-database-management program gives you far-more-powerful ways to organize information. For example, a relational-database-management program lets users do such things as cross-reference their telemarketing department's customer information to that of their accounting department, letting them easily tie sales calls to bottom-line dollars.

However, all this relational power isn't immediately available as soon as you pull a relational-database-management package off the shelf. You must build a database application that meets your specific requirements. For example, on your network, you might want a multiuser application that gives several users access to the same information. You can use any of the programs we cover in this report to create anything from a simple, flat-file database to a complex, networked multiuser application. In this report, however, we focus on using these programs as development tools for building database applications for single users, because a small business or even an individual user can benefit from a custom-designed relational-database application.

**BY MICHAEL MILEY AND THE  
MACUSER LABS STAFF**





PHOTOGRAPHY: WALT DENSON



Figure 1: Relational-Database Managers

**Patients file**

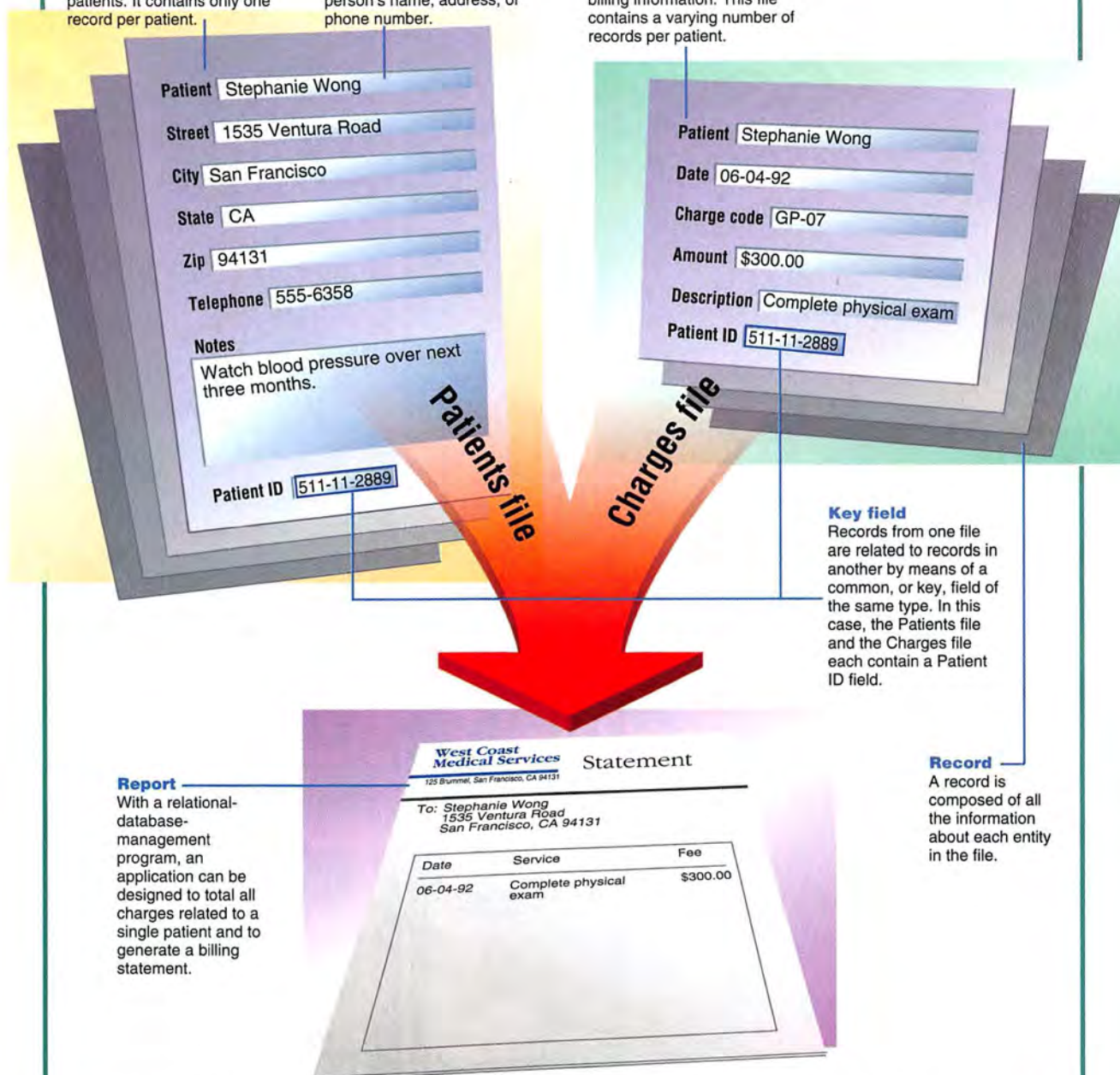
The Patients file contains information strictly about the patients. It contains only one record per patient.

**Field**

Each field contains a particular type of data, such as a person's name, address, or phone number.

**Charges file**

The Charges file contains all the data that will be used for billing information. This file contains a varying number of records per patient.



**Figure 1:** A relational-database-management program lets you cross-reference information between two or more files that share a common, or key, field. Each file contains information about a particular category. For example, in this sample database structure, information about patients is in one file and information about charges is in another. The files are linked by means of the Patient ID

field. Because the charges are kept in a separate file, multiple charges can be related to a single patient. In this kind of relationship, often called a one-to-many relationship, a single record in the parent file (Patients) may be related to many others in the child file (Charges). Relational-database-management programs let you establish a variety of relationships among sets of data.



You can, for example, move all the information you keep in different places in your office into a database that links records in one file — containing patient, client, or customer information, for example — to records in another file containing, perhaps, charges for services (see Figure 1). Your application can include entry screens that let you quickly enter data about charges and cross-reference it automatically to your Clients file. Your application can also be designed to automatically generate billing statements, income and expense reports, and the like. One benefit of keeping different kinds of information in separate files is smaller file sizes, which may mean increased efficiency for your system. How quickly you can enter and retrieve the information you need depends on many factors, including the size of the database — the number of records each file contains, for instance — and how well the application is designed.

In this report, we look at the four Mac relational-database-management programs — ACIUS' 4th Dimension, Blyth Software's Omnis Seven, Fox Software's FoxBASE+/Mac, and Odesta's Double Helix — that provide all the tools you need in order to build your own database applications. With each of the four programs, we had an application developed for testing the speed of some typical operations that database applications are designed to handle: adding records, sorting, searching, and indexing (see the "How We Tested" sidebar).

But speed is only a single facet of database management — and not necessarily even the most important. Each of the four relational-database-management programs has a distinct development environment with tools — usually including a procedural language — that you need to understand in order to create applications. Although you don't have to learn the ins and outs of C, Pascal, or the Macintosh Toolbox to develop applications, you may have to devote some time to a hike up the learning curve.

#### 4th Dimension

ACIUS' 4th Dimension is powerful enough for developers yet simple enough for novice database-program users. The program provides three menu-selectable working modes, or environments. Launching the program opens the Design environment, which gives you access to all the tools you need to build database applications, from creating the file structure through designing the menus. The User environment lets you manipulate data in database files directly, without writing a separate application. And the Runtime environment is the mode users work in when they run your custom-designed applications.

The Design environment provides six windows, called editors, in which you build your applications' features. For example, the Structure editor is the window in which you design the *structure* of your database — the files, fields, indexes, and relations (see Figure 2). Establishing a relation between two files is as easy as drawing a connecting line between common, or key, fields. In addition to key-field relations between files, 4th Dimension also lets you create *parent/child*, or hierarchical, relationships between files and their *subfiles*. A subfile — a child — is a subordinate file that can contain any number of records associated with a single record in the parent file. Such hierarchical relationships are useful when you will have a varying number of additional entries for each record. For example, a parent Patients file might include a field for a Prescription History child file: Some patients will have a variety of prescribed medication, which can be entered into this subfile; other patients will have none.

The Design environment's Layout editor is where you design input and output screens for your applications. Users of your applications will view, enter, search, and modify the information in the database through the input screens. Output can be displayed on-screen or printed. ACIUS provides five predesigned input layouts and

#### How We Tested

Our test application was designed to highlight the speed of some of the low-level functions that any relational-database-management program performs: adding, deleting, and searching for records, for example. Designing and building even the most basic application with one of the four programs we tested is no trivial task: Developing a real-world application that consistently measures performance from program to program — and does so fairly — is even more of a challenge.

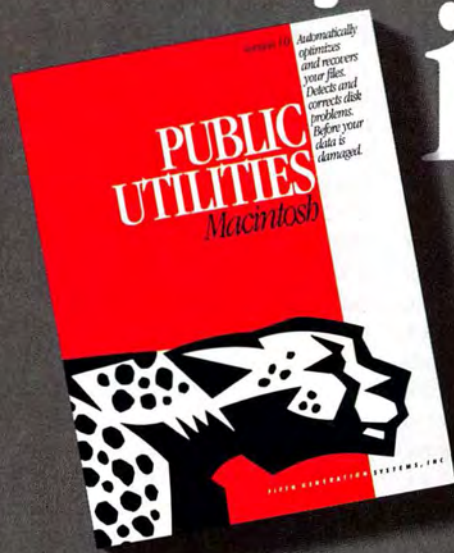
We worked with four leading database developers in the San Francisco Bay Area, each of whom is a specialist in writing business applications that use these programs. David Beaver, president of The Automation Group, of San Francisco, designed the tests and coded the test-suite application in 4th Dimension. Steven Fogel, president of SFC Desktop Business Systems, of San Francisco, produced the application in Omnis Seven. John Livingston, principal of DOC Systems, of Palo Alto, California, wrote the FoxBASE+/Mac application. And Lenny Eiger, principal of Data Bright Management Systems, of Mill Valley, California, developed the Double Helix application.

three predesigned output layouts to get you started, but you can design an interface with the Layout editor's excellent set of tools. You can, for example, create color graphics and add active objects, such as scripted buttons, to your layouts, and you can align headers and footers and place fields where you want them. Your layouts can additionally include fields with entry and display filters for built-in validation, assuring that data entered in them fulfills previously set conditions.

4th Dimension's Layout editor gives you better results with less effort than any of the other products' tools do. Unfortunately, 4th Dimension doesn't let you build multiwindowed applications, so users of your applications can have only one view of their data open at a time (see Figure 3). This is the only program of the four we tested



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**FIFTH GENERATION SYSTEMS, INC**

CIRCLE 102 ON READER SERVICE CARD.



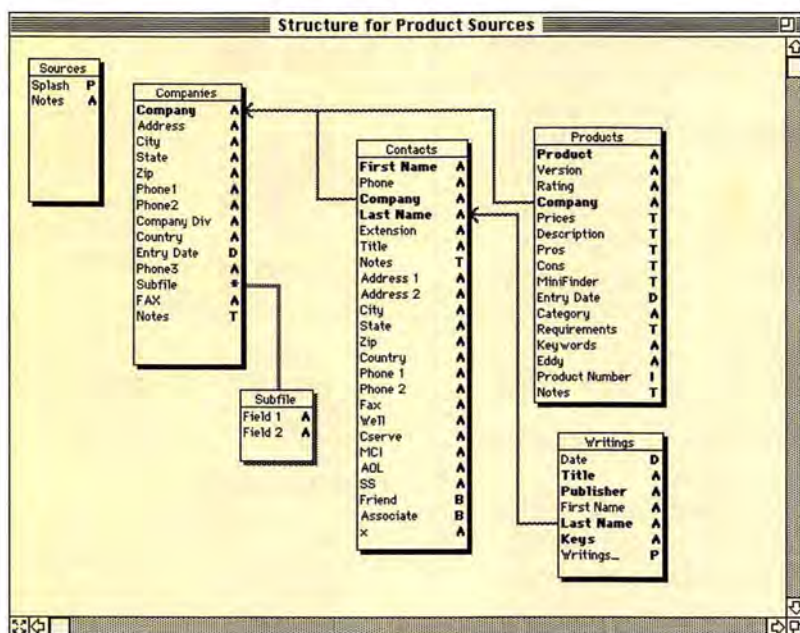


Figure 2: 4th Dimension's Structure window provides a bird's-eye view of your database design, letting you set up your files and draw your relations easily. This database has five files, three relations, and one subfile defined.

The window is titled "Entry for Patients". It contains a form with the following fields:

- Last Name: Lane
- First Name: Mark
- Home Addr: 3571 Oak Street
- Other Addr:
- City: Washington
- State/Zip: DC 02021
- Country: USA
- Home: (212) 783-0293
- Other: (212) 783-7878
- Patient: Lane
- Date: 6-4-92
- Charge: \$110
- Code: EEG-5
- Notes: Allergic to aspirin.

At the bottom of the window is a toolbar with the following icons and labels: Delete, Search, First, Prev, Next, Last, Page, OK, Cancel.

Figure 3: You can relate two or more files in 4th Dimension, but you can't open more than one window at a time to view them. 4th Dimension's Included Layouts feature, however, gives you access to multiple files on one entry screen (this figure shows an included layout in the upper right corner).

that doesn't allow multiple windows, a shortcoming ACIUS should have addressed long ago.

To completely automate your applications, you can use the Design environment's Procedure editor. Although you don't need to get involved with 4th Dimension's procedural language to use the program, if you're planning to build a completely automated menu-driven application that shields users from the application's inner workings, you'll want to code the application by using the language. Its commands provide the same functions — such as database searching — as do the menus in the User environment. The 4th Dimension language is considered a *high-level* language: A single command often replaces what would be hundreds of lines of programming code in a traditional computer language.

4th Dimension is powerful and gives you a lot of flexibility in designing custom applications, but it can't keep pace as the volume of information in the database — the number of records — increases (see Figure 4). One remedy might be to compile your application code with the 4th Dimension compiler, an add-on that ACIUS sells for \$1,000. Skilled programmers can extend 4th Dimension's capabilities by writing externals in C, Pascal, or other languages.

### Omnis Seven

Although Blyth Software markets Omnis Seven specifically for application developers, the program has a lot of appeal for beginners as well. Omnis Seven lets you toggle between two menu modes: Short Menus and Long Menus. Whether you're a beginner or a developer interested in quick prototyping, you can use the Short Menus mode to have the program automatically create entry screens and reports from the fields you've defined in your database files and then automatically create a menu containing these entry screens and reports.

Screens and reports generated with Short Menus provide limited features



but are nonetheless functional. For example, windows created in Short Menus mode can have close, grow, and zoom boxes; horizontal and vertical scroll bars; and buttons. After first using the Design menu to set up your file structure, you can generate an entry screen at the click of a button: Simply click on the Make Window From File button in the Window Formats dialog box. Likewise, to generate a report automatically, click on the Make Report From Format button. You have limited options, such as adding headings and page numbers, for customizing the look of such an automatically generated report. Similarly, you can easily tie the entry screens and reports together on a generated menu by clicking on the Make Menus From Format button in the Menus dialog box.

Developers will want to add more functions and fine-tune their applications, using the program's Long Menus mode. Regardless of which mode you're working in, Omnis Seven has a well-designed and consistent interface. In Long Menus mode, you use the Design menu's Formats option to customize entry screens, reports, and menus. Selecting what you want to format — an entry screen, report, menu, or file structure, for example — gives you a window with a set of appropriate tools. The entry screens you format can contain graphics, text, color, pictures, and lines, and the windows can also provide controls such as buttons. Unlike 4th Dimension, Omnis Seven lets you have multiple views of your data open at the same time (see Figure 5).

You can design a complex report with as many as nine levels of sorts and subtotals. Your reports can use color graphics, text, and fields from as many files as you like. Using the Customize screen, you can add lines, shapes, and fills to your reports as well as pick new fonts and styles (see Figure 6).

The Omnis Seven procedural language comes into play in the menu-design window. Here you can define

the elements of your menus — their title and menu options and the procedure associated with each option. The procedures are made up of the Omnis Seven commands, which are displayed in a scrollable list in this window as well. Like 4th Dimension's, the Omnis Seven procedural language is a high-level language in which you can take care of many discrete steps by issuing a single command.

One unique aspect of Omnis Seven is its cross-platform capability. The program offers seamless portability between Mac database applications created for use in the Mac environment and applications meant for one of the competing PC-based graphical user environments, Microsoft Windows or IBM's Presentation Manager. Applications written for Omnis Seven on any of these platforms can be moved to the other platforms without modification.

### **FoxBASE+/Mac**

Fox Software's FoxBASE+/Mac also provides cross-platform compatibility, in this case between Macs and DOS-based machines: The Mac and the DOS versions of the program each use the FoxBASE+ language, which is nearly identical to the renowned dBASE language. FoxBASE+ is a lower-level language than either 4th Dimension's or Omnis Seven's, which is one of the reasons FoxBASE+/Mac applications are particularly fast.

Like 4th Dimension and Omnis Seven, FoxBASE+/Mac provides more than one working mode, or environment: You can operate FoxBASE+/Mac from within the View window, with pull-down menus, from within the Command window, or by using a combination of these methods. For beginners, the View window provides a graphical interactive work area that provides tools for doing much of the work, such as creating database-file structures, establishing relations among files, and entering and modifying data (see Figure 7).

The View window provides ten work areas in which you can open

## **On the Horizon**

Except for Blyth Software's formidable Omnis Seven, released this past winter, significant new relational-database-management programs have been scarce. Incremental upgrades or bug fixes do ship occasionally, but major new releases are rare. ACIUS, for example, has been working on a much-ballyhooed update of 4th Dimension, but we started hearing about it well over a year ago and the product is still nowhere to be seen.

One glimmer in the distance, however, is FoxPro/Mac, which is expected later this year. FoxPro is already available for DOS machines, and its performance is astonishing. FoxPro/Mac will incorporate Fox Software's breakthrough Rushmore query-optimization technology, which promises to result in even greater speed than that of FoxBASE+/Mac.

Fox Software also promises that FoxPro/Mac will provide simplified file management by means of a project-management feature that will keep track of all your project's files. Your application will be represented by a single icon on the desktop rather than a multitude of file icons.

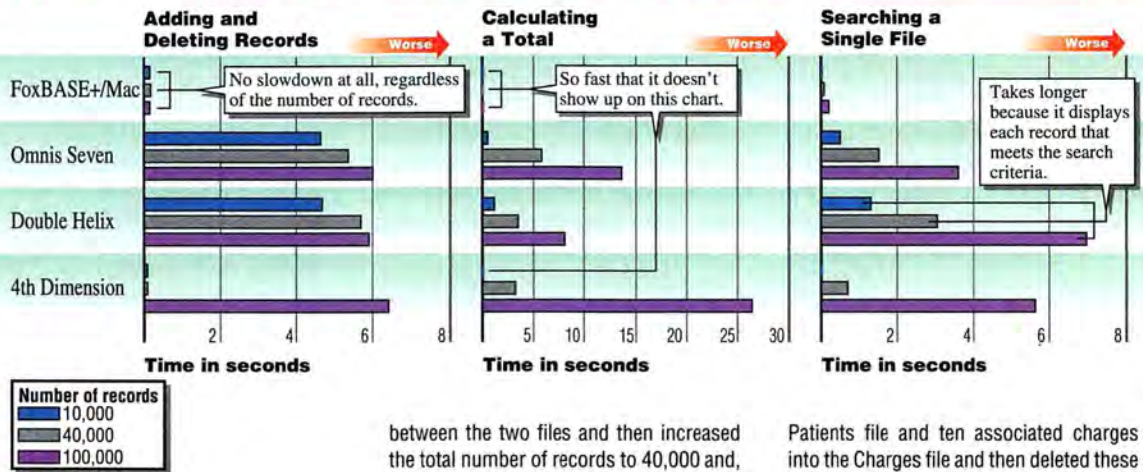
You can also expect FoxPro/Mac to sport an interface that's more elegant than that of its predecessor and to include many other features commonly associated with a graphical user interface, including pop-up, scrollable, and resizable windows. FoxPro/Mac will also provide 4GL (Fourth Generation Language) tools, such as Quick Report and Quick Screen, and predefined layouts for the Label Designer, for fast development. And a new Windows version of FoxPro, expected at about the same time, will provide cross-platform compatibility for DOS and Windows machines and Macs.

— Stefan B. Lipson

your database. FoxBASE+/Mac lets you set a relation among files in two ways: based on the record number in the main file or based on a key field. Setting a relation based on a key field is the more common of the two methods, and it requires that at least one common key field exist in both files.



**Figure 4: Test Times of Relational-Database Managers**



**Figure 4:** The more information your relational-database application has to grapple with, the more you'll care about speed. We tested some of the bread-and-butter chores common to all database applications: adding and deleting records, calculating a total, searching single and related files, and changing indexed and nonindexed files. The test database included two files — a Patients file and a Charges file. We started with a total of 10,000 records

between the two files and then increased the total number of records to 40,000 and, finally, 100,000. Our test platform consisted of a 5-megabyte Mac IIci running under System 7.01, with an 80-megabyte internal hard drive. Keep in mind that many factors play a part in database speed, especially including how well designed and well written the application is.

#### Adding and Deleting Records:

One of the most basic functions of a database application is to let you add new information and delete old information. We inserted a new-patient record into the

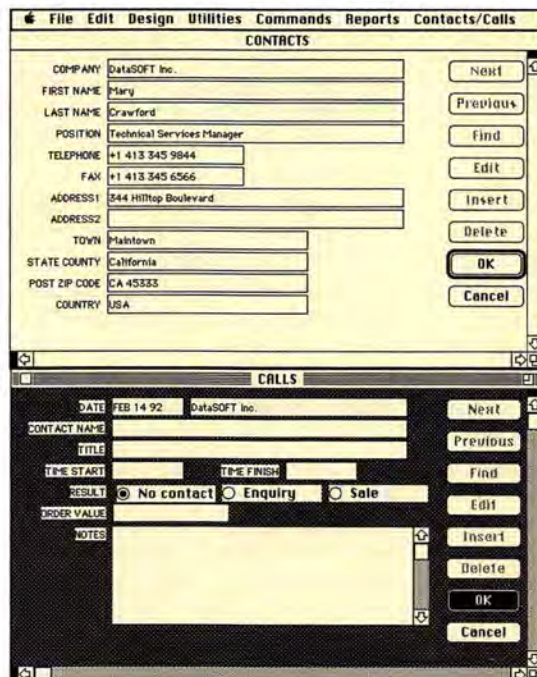
Patients file and ten associated charges into the Charges file and then deleted these same records to keep the size of the database constant. Although 4th Dimension got off to a quick start, its speed plunged at the 100,000-record file size.

#### Calculating a Total:

Because the Patients file is related to the Charges file, an application can perform such tasks as generating invoices or billing statements. The more records the database application has to churn through, the longer the calculation and statement-building process takes. Our test application

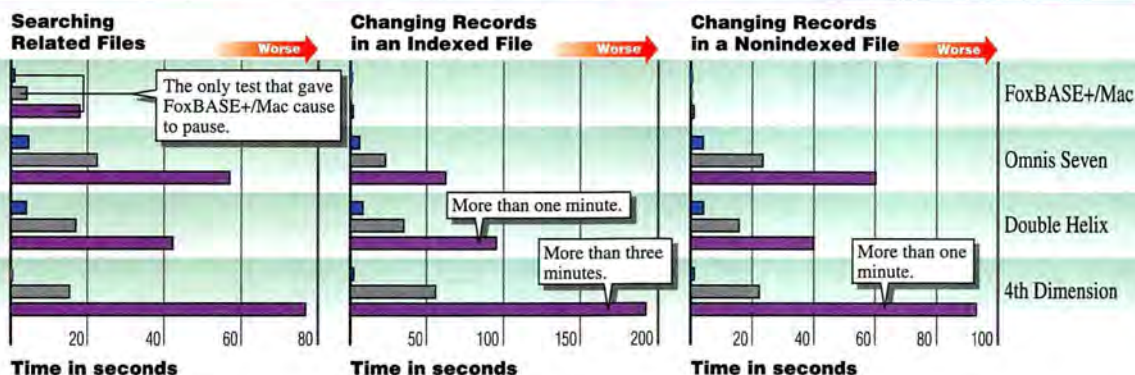
The file being related must be indexed on that key field. You can easily create indexes in the View window and then simply connect the first file to the second by drawing an arrow to it in the View window.

As with 4th Dimension and Omnis Seven, you can work with your data in this interactive mode: For example, double-clicking on a file in the View window gives you a spreadsheetlike look into your database file in the Browse window, in which you can add and delete data, adjust the size and order of the fields, or filter out the fields you don't want to see, for example. But when it comes to developing applications, you're going to have to get involved with the FoxBASE+ language. Because it's a lower-level language than 4th Dimension's and Omnis Seven's, building a full-featured application with a sophisticated



**Figure 5:** Unlike 4th Dimension's applications, Omnis Seven's can have multiple views of multiple files on-screen at the same time. This database was set up with an Omnis Connection, which creates a hierarchical, or parent/child, relationship between two files: For every record in the parent Contacts file, there can be one or more (or no) related records in the child Calls file.





searched through the database for all the charges on a specific date and calculated the total amount. Regardless of the size of the database, FoxBASE+/Mac didn't slow down.

#### Searching a Single File:

One of the best things about having your information in a database is being able to find out all kinds of things quickly. We searched our database's Patients file for all the people with the same last name. Once again, regardless of the number of records in the file, FoxBASE+/Mac didn't slow down appreciably.

#### Searching Related Files:

Because the Patients file is related to the Charges file, you can quickly cross-reference information in the two files. Relational searches are much more complex than are searches of a single file: Executing a relational search can take ten times as long as searching a single file.

#### Changing Records in an Indexed File:

FoxBASE+/Mac is so fast that it finishes before you've noticed that it's started. Searching through the database and marking selected records as Paid was the most taxing of all our tests — notice the change

in the time scale. With 100,000 records, 4th Dimension took close to 200 times as long as FoxBASE+/Mac did.

#### Changing Records in a Nonindexed File:

Making changes to records in a file without an index attached is generally faster than changing records in an indexed file, because the index doesn't need to be updated after changes have been made. Omnis Seven took the same time to perform the 100,000-record test on indexed and non-indexed files, however. FoxBASE+/Mac was once again just as fast at 100,000 records as at 10,000.

interface requires a lot more coding in FoxBASE+/Mac.

Fortunately, in addition to context-sensitive help screens, FoxBASE+/Mac includes integrated components — FoxForm and FoxReport, for example — to help you develop applications. FoxForm provides you with a graphical tool for designing entry

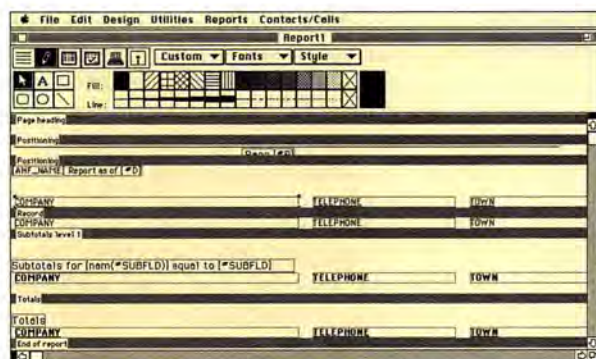
screens: You can set titles and text labels, draw lines and rectangles, set buttons and check boxes, and include picture fields. FoxReport provides the same graphical features for designing custom reports that include header, body, and footer regions. Reports can include graphics and pictures. In addition, a Quick Report feature allows

you to lay out reports quickly.

Unlike Omnis Seven, which holds all the components of an application — the database files, entry screens, reports, and commands that keep all these pieces together — in one file, FoxBASE+/Mac generates separate files for everything. A complete FoxBASE+/Mac application can include dozens of files — the database files themselves, each entry screen, every report, every index, and so on — so extra file management is necessary. Fox Software will address this problem in an upcoming product (see the "On the Horizon" sidebar).

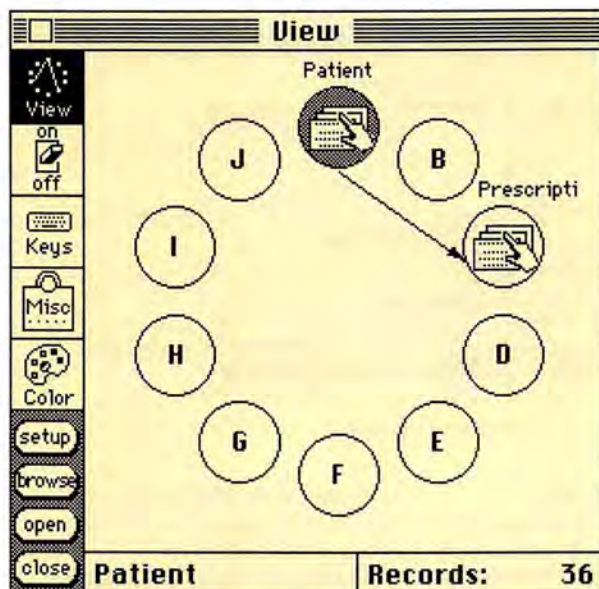
#### Double Helix

Double Helix is the only relational-database-management program to use an icon-based approach to application development. Rather than working with a procedural language — and its



**Figure 6:** Omnis Seven offers several ways of creating reports and building them in to your applications. The Ad Hoc report generator is a flexible tool that combines a powerful query tool with a quick report generator.





| Patient      |            |                       |
|--------------|------------|-----------------------|
| Last_name    | First_name | Street                |
| Bradshaw     | Carol      | 534 Beverly Court     |
| Corrigan     | Mary       | 81 China Court        |
| Devine       | Joey       | 1545 East Shore Drive |
| Devine       | Ryan       | 6365 Shew Street      |
| Gonzales     | Maria      | 66 Pepperidge Road    |
| Harris-Silva | Ryann      | 332 Shad Court        |
| Lundstrom    | Karen      | 3439 Oakdale          |
| Normen       | Kenneth    | 111 Central Avenue    |
| Rosetti      | Kiel       | 908 Juanita Way       |
| Rosetti      | Karl       | 908 Juanita Way       |
| Rosetti      | Kristina   | 908 Juanita Way       |
| Schoen       | Susan      | 8326 Bayview          |
| Silva        | Michael    | 183 Winding Terrace   |
| Silva        | Lauren     | 635 Oak Park Drive    |

**Figure 7:** FoxBASE+/Mac has many different working environments, and you can use any or all of them in combination. You can create your database files and set up relations between files in the interactive View window (left). Double-clicking on a file icon in this window pops open a Browse window of the information in that file (above). Multiple windows of multiple files can be open at one time.

associated grammar and syntax — you build applications by using a family of 11 unique icons. For beginners and nonprogrammers, Double Helix is easier to learn and to program than any other relational-database-management program.

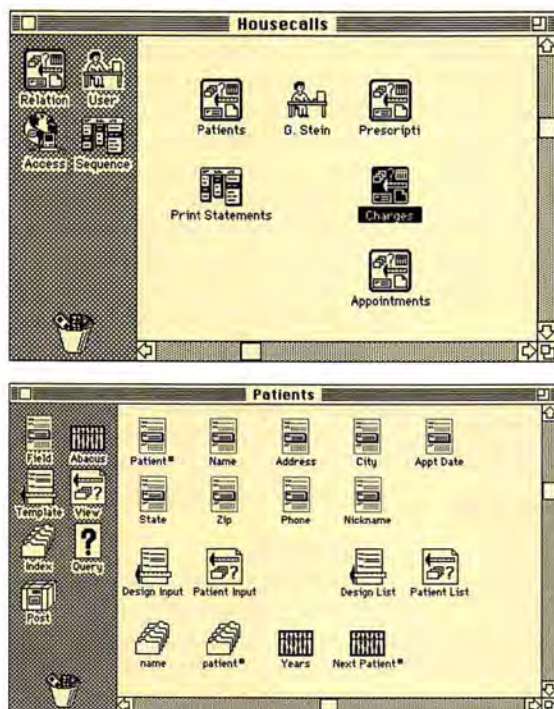
A Double Helix database is called a Collection, and the individual files are

called Relations. The application-building process takes place in a Collection window, which contains a blank work area and an icon palette (see Figure 8). Different icons, representing objects such as fields, indexes, entry screens, and reports, are the basic building blocks of your Collection (see Figure 9). The objects provide

core abilities, but you must customize the objects to create applications. To begin setting up the structure of a database, for example, you drag a Relation icon into the Collection window's work area. Double-clicking on an object opens a window in which you can lay out the object's structure by dragging icons specific to that object's functions from a "well" of other icons

Although Double Helix is the easiest program to start with, it's also the most limited of the four we looked at. Building a complex report with break points and alternately repeating headers and footers involves choosing the appropriate icons for that report. Double Helix doesn't provide an independent report generator to automate this process. And the icons you customize become a part of the Collection and can't be copied or saved for use in other Collections, so you can't build a library of reusable sub-routines, as you can with the other three programs.

Nonetheless, putting together an application with Double Helix is still easier than with the other programs. Particularly useful is Get Info, which lists where all your icons are being used; double-clicking on an icon in the list takes you there directly.



**Figure 8:** Unique to Double Helix is its icon-based application-development program. Database applications consist of sets of icons, which you put together in a simple layout window (top). After placing each icon in the window's work space, you double-click on an icon and begin adding features to its basic structure (bottom).



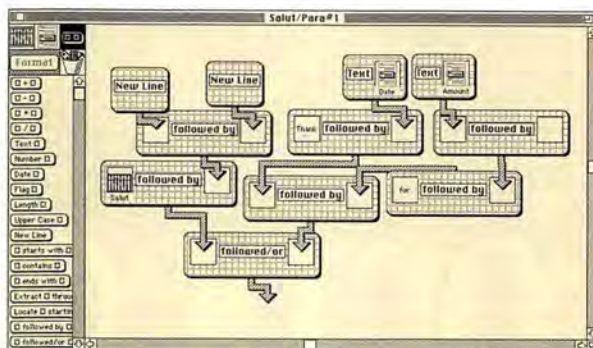
The program is quick at performing complex AND, OR, and NOT queries, fairly typical kinds of searches.

At press time, the status of Double Helix was in question (see the "Bottom Line" sidebar); call Odesta for further information.

### Relative Merits

The four Mac relational-database-management programs described here can each give you all the tools you need to build high-performance business applications. Deciding which one to choose depends on the application-development features you require and how much data your files will contain. It also depends on how much expertise you have in application development and how complex a system you need to create. For beginners, Double Helix offers a unique icon-

**Figure 9: A picture is worth a thousand words? In Double Helix's icon-based approach, you define such things as relations, calculations, and queries by using graphical tiles. It took all these icons to define a form-letter greeting requesting a payment.**



based approach to application building. 4th Dimension is also relatively easy for beginners, but it slows as the size of your database grows. FoxBASE+/Mac requires the most programming but is also the fastest. And to its credit, Blyth recognizes the challenge of the application-development process and markets Omnis

Seven specifically for developers. And remember, if you don't want to develop your applications yourself, you can hire a consultant who specializes in one of these programs.

Michael Miley won the Computer Press Association's award for best software review for "Mail Call," his 1990 *MacUser* lab report on E-mail.

## The Bottom Line

ACIUS' **4th Dimension** (\$795) is a well-rounded relational-database-management program that's easy for beginners but powerful enough for developers. You can build an elegant interface in 4th Dimension with little effort. Unfortunately, if you expect to have lots of information — tens of thousands of records — in your database, you can forget about speed. Of all the programs, 4th Dimension was the only one that consistently bogged down when the size of a database file reached the 100,000-record mark. If you expect to be working with large volumes of data, you'll be disappointed by 4th Dimension.

If it's speed you're after, you'll get it with Fox Software's **FoxBASE+/Mac** (\$495). Regardless of database size, FoxBASE+/Mac screamed through our tests. One drawback of FoxBASE+/Mac, however, is its language, FoxBASE+. The language is powerful, but it requires that you code virtually everything in your application, unlike 4th Dimension's language, say, which takes care of hundreds of steps with a single command. Because of this, FoxBASE+/Mac's learning curve is steeper than those of the other programs. In its favor, FoxBASE+/Mac has a context-sensitive help feature. And code automatically generated in the Commands window in response to your menu selections can be copied and pasted or saved for future use.

Blyth Software has targeted **Omnis Seven** (\$1,250) specifically at developers. Nevertheless, the package provides plenty of features for beginners: a consistent, easy-on-the-brain interface and the Short Menu mode, which generates entry screens, reports, and menus with a click of a button. Applications produced with Omnis Seven are fast and provide stellar cross-platform compatibility: To port an application to Windows or Presentation Manager, you simply have to copy one file to the 386- or 486-based machine.

Finally, Odesta's **Double Helix** (\$695), with its icon-based design

environment, offers a unique approach to application development. You can get started with Double Helix faster than with any of the other products. It does have some limitations, though — for example, you can't build a subroutine library (a storehouse of application chunks for reuse in other applications), as you can with the code-based languages.

One final note: Just as we finished testing, Odesta and Albara — the parent company of Hardware That Fits — signed a letter of intent to transfer ownership of Double Helix to Albara. At press time, the status of this product was in question, but for further information, you can still call Odesta.



Depending on your business needs, one of these relational-database-management programs — Blyth Software's Omnis Seven, Fox Software's FoxBASE+/Mac, Odesta's Double Helix, or ACIUS' 4th Dimension — should suit you fine.



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**Table 1: Features of Relational-Database Managers**

| ● = yes<br>○ = no            | Double Helix 3.5<br>                                                                             | 4th Dimension 2.2.3<br>                                                | FoxBASE+/Mac 2.01<br>     %                                                   | Omnis Seven 1.0<br>                                                                                                |
|------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>List price</b>            | \$695                                                                                            | \$795                                                                  | \$495                                                                         | \$1,250                                                                                                            |
| <b>Pros</b>                  | Easy to learn. Icon-based programming.                                                           | Elegant interface-building options. High-level-programming options.    | Fastest. Mac/DOS compatibility. dBASE compatibility.                          | Fast. Seamless portability to Windows and Presentation Manager.                                                    |
| <b>Cons</b>                  | No reusable code. Cannot link externals.                                                         | Performance slows as database grows. No multiwindow capabilities.      | Requires more coding than any of the other programs do.                       | Expensive.                                                                                                         |
| <b>Features</b>              |                                                                                                  |                                                                        |                                                                               |                                                                                                                    |
| Minimum hardware             | 68000-based Mac                                                                                  | 68000-based Mac                                                        | 68000-based Mac                                                               | 68000-based Mac                                                                                                    |
| Minimum RAM                  | 2 MB                                                                                             | 1 MB                                                                   | 1 MB                                                                          | 2 MB                                                                                                               |
| Minimum disk space           | 4 MB                                                                                             | 2 MB                                                                   | 4 MB                                                                          | 4 MB                                                                                                               |
| System 6- and 7-compatible   | ●                                                                                                | ●                                                                      | ●                                                                             | ●                                                                                                                  |
| Multiwindow                  | ○                                                                                                | ○                                                                      | ●                                                                             | ●                                                                                                                  |
| <b>Developers' features</b>  |                                                                                                  |                                                                        |                                                                               |                                                                                                                    |
| Support program, cost        | ●, \$295                                                                                         | ●, \$895*                                                              | ○                                                                             | ●, free                                                                                                            |
| Compiler, cost               | ○                                                                                                | ●, \$1,000                                                             | ●, free                                                                       | ○                                                                                                                  |
| Run-time version             | \$150                                                                                            | \$125                                                                  | \$300                                                                         | \$325                                                                                                              |
| <b>Debugging features</b>    |                                                                                                  |                                                                        |                                                                               |                                                                                                                    |
| Break points                 | NA                                                                                               | ●                                                                      | ●                                                                             | ●                                                                                                                  |
| Single-step execution        | NA                                                                                               | ●                                                                      | ●                                                                             | ●                                                                                                                  |
| Link libraries and languages | ○                                                                                                | ●                                                                      | ●                                                                             | ●                                                                                                                  |
| <b>Help features</b>         |                                                                                                  |                                                                        |                                                                               |                                                                                                                    |
| On-line tech support         | America Online                                                                                   | CompuServe                                                             | CompuServe                                                                    | CompuServe                                                                                                         |
| Tech support                 | yes†                                                                                             | yes                                                                    | yes                                                                           | yes                                                                                                                |
| <b>Company</b>               | Odesta Corp.<br>4084 Commercial Ave.<br>Northbrook, IL 60062<br>(800) 323-5423<br>(708) 498-5615 | ACIUS, Inc.<br>10351 Bubb Rd.<br>Cupertino, CA 95014<br>(408) 252-4444 | Fox Software<br>134 W. 5th Boundary<br>Perrysburg, OH 43551<br>(419) 874-0162 | Blyth Software<br>1065 E. Hillsdale Blvd.<br>Ste. 300<br>Foster City, CA 94404<br>(800) 843-8615<br>(415) 571-0222 |

\*Annual renewal costs \$495 after the first year.

†\$85 per year; first 90 days are free.

**Table 1 Criteria**

**List price** — The manufacturer's suggested retail price.

**Minimum hardware** — The Mac model required to run the program.

**Minimum RAM** — The minimum amount of random-access memory required to run the program.

**Minimum disk space** — The minimum amount of hard-disk space required to install and run the program.

**System 6- and 7-compatible** — Does the program run under System 6 and 7?

**Multiwindow** — Does the program's

interface let users open multiple windows on-screen?

**Support program, cost** — Does the vendor offer an additional tier of support for developers, and if so, how much does it cost?

**Compiler, cost** — Does the vendor provide a program that accelerates the speed at which your code runs, and if so, how much does it cost?

**Run-time version** — Price of the version of the program that lets you run an application without the relational-database-management program.

**Break points** — Does the software let programmers establish start and stop points in code for testing specific portions?

**Single-step execution** — Does the software let programmers step through code, line by line, for easier debugging?

**Link libraries and languages** — Does the software let you incorporate externals written in languages other than that of the database?

**On-line tech support** — On-line computer forums or bulletin-board services available for users.



# Make The Editors' Choice Your Choice.



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D I G I T A L



"The PowerCache offers the best of all worlds - blazing performance, complete compatibility with other Mac hardware and software, very good technical support, and a pricing structure that is almost impossible to beat."

MacWEEK Sept. 17, 1991

## The PowerCache is fast...

The PowerCache™ swept the awards, beating the 68040 based accelerators. Why? Because the 68040's do not always run fast. Their processor must be turned off to maintain compatibility with many applications and utilities. This puts the 68040 in the slow "compatibility" mode - *as slow as a standard Mac IIci*.

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The PowerCache accelerates all your software, all the time, guaranteed. Products using the 68040 can't make this claim because many applications are not compatible. While the 68040's "compatibility mode" solves the compatibility problem it creates another... very slow speeds for all active applications.



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You're always fast and always running at full speed. The PowerCache delivers when you need it. You avoid the delays of diagnosing flaky crashes and switching modes. Why buy an accelerator to run in a slow mode?

## It works for you.

We have the support that keeps you out in front. For example, our PowerCache works in seven different Macs, and it doesn't take up any expansion slots needed for other cards.

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Yes, we will one day offer a swap-up to the 68040, but only when it's available at faster 33 MHz and 40 MHz speeds, and when the compatibility problems are solved.

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You make the choice. The PowerCache gives you incredible speed and rock solid compatibility. This means real productivity, hour to hour, day in and day out. Results that make your spreadsheets and graphics programs fly like the wind. That's the leading edge.

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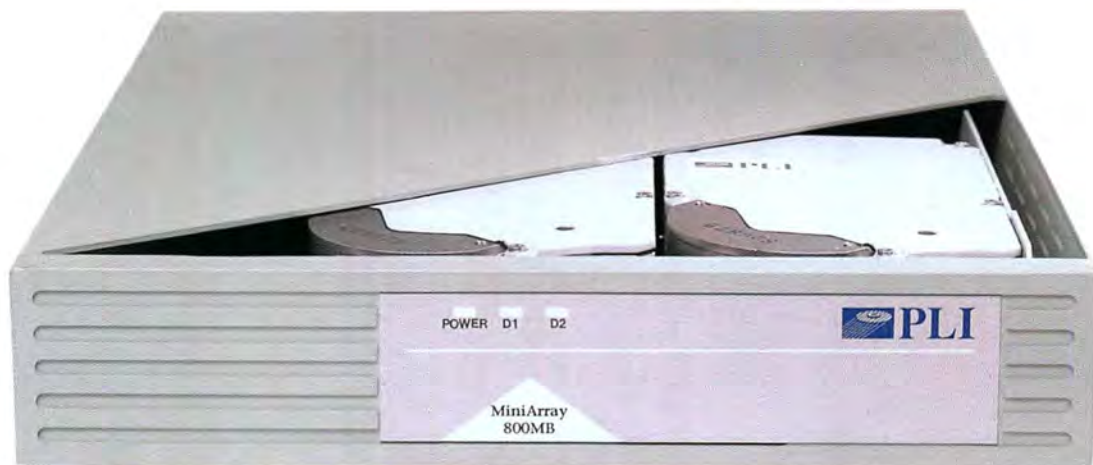
5556 Atlanta Highway, Flowery Branch, GA 30542 • Int'l: (404) 967-2077, Fax: (404) 967-3018 • This ad was completed on a Mac with DayStar upgrades installed. Other brands and product names are trademarks or registered trademarks of their respective holders. Product specifications are subject to change without notice. ©1991 DayStar Digital, Inc.

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And with all that speed comes the capacity you need. Sizes range from 240MB to 4GB to fit any need, while prices start at less than \$2,000 (so you can update your software, or maybe even your wardrobe, along with your drive). And you can feel secure about your decision with our two-year warranty, which can be extended to give you up to five years of coverage.

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This low price also gets you PLI's QuickSCSI, included with every MiniArray. That means the features of QuickSCSI—disk mirroring\* between daisy-chained hard drives, support for an additional seven MiniArrays or hard drives and increased speed for all attached SCSI devices—are a pleasant bonus to an already great deal.

So the next time you're waiting on your hard drive, call and order the new PLI MiniArray.

\*Data redundancy for the MiniArray provided by optional PLI Redundant Software. All products are trademarks or registered trademarks of their respective companies.

***MiniArray. So what are you waiting for?***



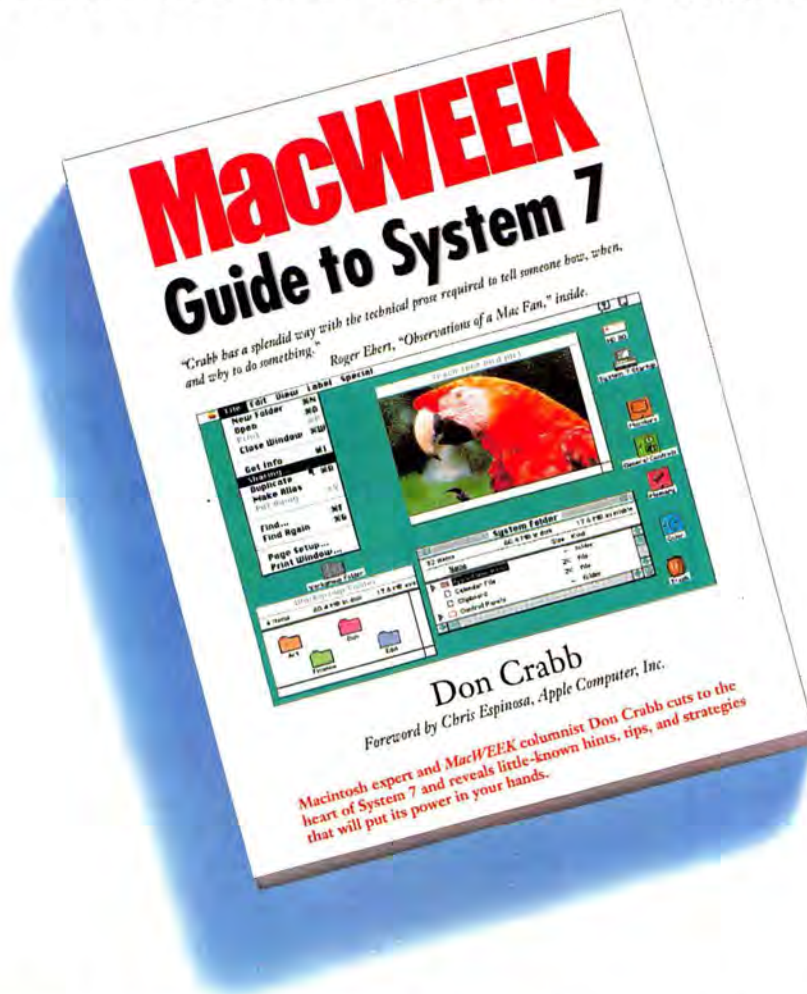
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No one can give you a better introduction to System 7 than Don Crabb, the leading expert on Macintosh and popular *MacWEEK* columnist. This book offers the tips and techniques you need to get the most from Macintosh's innovative operating system. It covers everything from memory management to working across networks, including customizing the System 7 environment, improving type quality (both on-screen and printed), and developing new system management strategies.

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| Street prices:    |                          |                   |         |                       |                             |
| \$1995            | \$3995                   | \$4295            | \$1750  | \$1749                | \$1995                      |

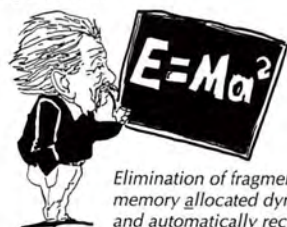
On average, the RealTech Laser performed 4 to 5 times faster than other PostScript® laser writers in its price range.



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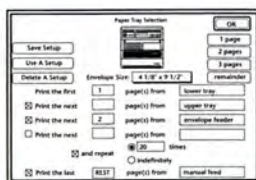
the next generation of Adobe's page description language, which has become the industry standard for defining pages of integrated text and graphics. It contains a number of performance, function and print quality enhancements that save printing time and improve quality. PostScript® Level 2 is compatible with all current application software that supports the PostScript® language. In addition, PostScript® Level 2 offers new capabilities, including forms handling, graphic patterns support, and new half-tone algorithms.



Elimination of fragmentation = memory allocated dynamically and automatically reclaimed

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One pool of memory is available for all resource needs. Memory is dynamically allocated and automatically reclaimed; no arbitrary memory restrictions exist. Disk space management is improved to eliminate fragmentation and improve transfer of information from the hard disk to RAM.



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An ideal choice for multi-user printing environments. Includes two 250-sheet cassette feeders as a standard feature. Optional envelope feeder available for RealTech only.

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|              | RealTech Laser             | Apple LaserWriter IIf | Qume CrystalPrint Publisher II | Texas Instru. PS35         | GCC BLP IIs             |
|--------------|----------------------------|-----------------------|--------------------------------|----------------------------|-------------------------|
| <b>Price</b> | \$1995                     | \$3999                | \$2995                         | \$1995                     | \$2499                  |
| <b>Pros</b>  | Weitek RISC processor      | Motorola 68020        | Weitek RISC processor          | Motorola 68000             | Motorola 68000          |
|              | 9 ppm 8.5x11               | 8 ppm 8.5x11          | 6 ppm 8.5x11                   | 9 ppm 8.5x11               | 8 ppm 8.5x11            |
|              | 2nd paper tray             | —                     | —                              | Optional 2nd paper tray    | Optional 2nd tray       |
|              | 300 dpi                    | 300 dpi               | 300 dpi                        | 300 dpi                    | 300 dpi                 |
|              | SCSI port                  | SCSI port             | —                              | —                          | SCSI port               |
|              | 2 mb RAM (+10*)            | 2 mb (+32*)           | 3 mb (+6*)                     | 1.5 mb (+4.5*)             | 2 mb (+2*)              |
|              | PostScript Level 2         | PS Level 2            | —                              | PS Level 1                 | PS Level 1              |
| <b>Cons</b>  | Only available through     | Very expensive        | Expensive                      | Slow for graphics          | Pricely                 |
|              | HARDWARE THAT FITS         | No 2nd paper tray     | No 2nd paper tray              | No SCSI port               | —                       |
|              | 1-800-972-3018             | —                     | No SCSI port;                  | Limited to 6 mb RAM        | —                       |
|              | Optional env. feeder \$269 | —                     | PS clone                       | Optional paper tray \$199  | Optional 2nd paper tray |
|              | —                          | —                     | —                              | Optional env. feeder \$269 | —                       |

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- **2 paper trays included!**
- **SCSI port**



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on pages 176-177  
and pages 232-237.

# \$4495

**RealTech  
Laser 400**

## AGAINST THE COMPETITION

### 11x17 PRINTERS/HIGH-SPEED PRINTERS

|              | <b>RealTech Laser</b>     | <b>QMS 2210</b>                                                               | <b>Hewlett-Packard IIIsi</b>                                                            |
|--------------|---------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>Price</b> | <b>\$4495</b>             | <b>\$9995</b>                                                                 | <b>\$6995</b>                                                                           |
| <b>Pros</b>  | Weitek RISC processor     | Motorola 68020                                                                | RISC-based formatter                                                                    |
|              | 8 ppm 11x17               | 11 ppm 11x17                                                                  |                                                                                         |
|              | 15 ppm 8.5x11             | 22 ppm 8.5x11                                                                 | 17 ppm 8.5 x 11*                                                                        |
|              | 2 paper trays             | Optional 2nd paper tray*                                                      | 2 paper trays                                                                           |
|              | 300 or 400 dpi            | 300 dpi                                                                       | 300 dpi                                                                                 |
|              | SCSI port                 | SCSI port                                                                     |                                                                                         |
|              | 4 mb RAM upgradable to 16 | 4 mb RAM                                                                      | 5 mb RAM upgradable to 17 mb                                                            |
|              | PostScript Level 2        | PS Level 1                                                                    | PS Level 1                                                                              |
| <b>Cons</b>  | Limited supply            | Very expensive                                                                | Expensive                                                                               |
|              | until 4/92                | Limited to 300 dpi                                                            | Limited to 300 dpi                                                                      |
|              | 1-800-972-3018            | Poor paper handling                                                           | No 11x17 output; no SCSI port                                                           |
|              |                           | Slow for complex graphics;<br>4 mb RAM maximum<br>* Optional paper tray \$115 | * Optional double-sided printing<br>costs \$695; not practical for<br>most applications |

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## ***Blasting Off:***

# **CPU Accelerators**

*Don't condemn your old Mac to the scrap heap just yet.  
MacUser Labs looks at 12 accelerators that can  
give even an LC near-Quadra speed.*

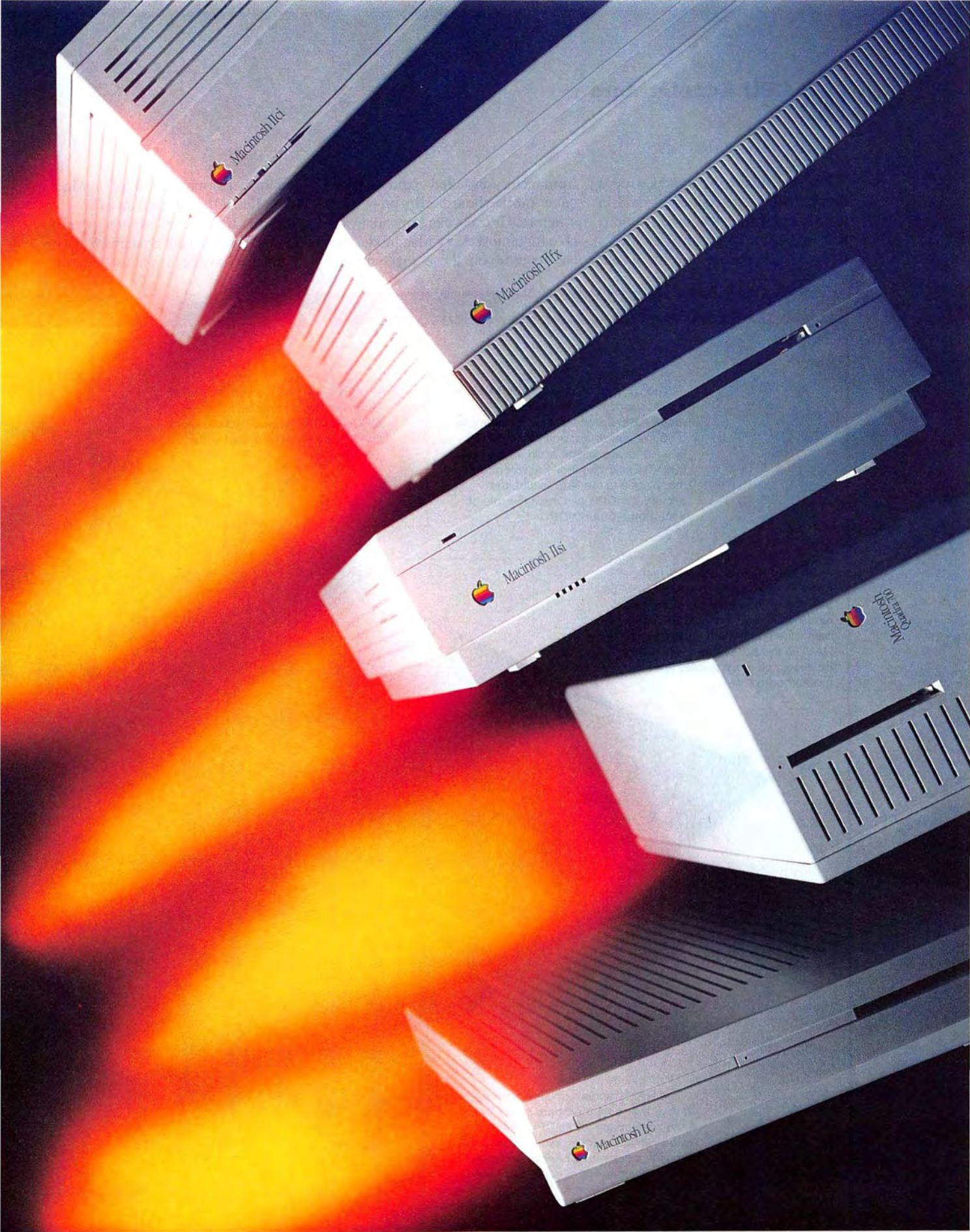


**BY WINN L. ROSCH AND THE MACUSER LABS STAFF**

**I**t's inevitable. No sooner is your Mac as familiar to you as your favorite pair of slippers than along come new models, such as the Quadras, that redefine such words as *speed* and *power*. Just knowing that more-powerful Macs are available can make the one on your desk seem to slow down. But there's no need to succumb to a Detroit-like "new Mac every two years" syndrome. With the help of a CPU accelerator, you can give your reliable old — or not so old — Mac a performance boost for a fraction of the cost of a new model.

And low cost isn't the only good news: Installation is much easier than it was when we last looked at accelerators (see "Chasing the IIfx: Accelerators," August '90, page 84). At that time, we found CPU accelerators so difficult to install that we recommended not straying from the official Apple upgrade. Today, your choices are much better: Many CPU accelerators are built for easy installation into your Mac's PDS (processor-direct slot).







For this report, we rounded up a dozen CPU accelerators — add-in boards and component modifications that replace or speed up your Mac's CPU. These products run the gamut

from factory-installed upgrades to arcane motherboard clip-on-wiring schemes. CPU accelerators are available for almost every Mac model, but we focused on those that squeeze

Quadra performance out of a Mac IIx, a IIci, a IIsi, or even an LC.

For the IIx, we tested three accelerators: The Perspect Systems Nexus fx and the Sixty Eight Thousand dash

## How It Works: Accelerating Your Mac

### Accelerator CPU

The CPU on an accelerator is usually a faster version of your Mac's motherboard processor — for example, a 50-megahertz version of the 68030 — or a faster processor, such as the new 68040. Except for those accelerators that plug in to the NuBus slot, the accelerator CPU assumes the role of your motherboard's CPU.

### Accelerator FPU

Accelerators based on the 68030 often contain a companion fast 68882 FPU. On 68040-based accelerators, the FPU is an integral part of the 68040 chip.

### Accelerator RAM cache

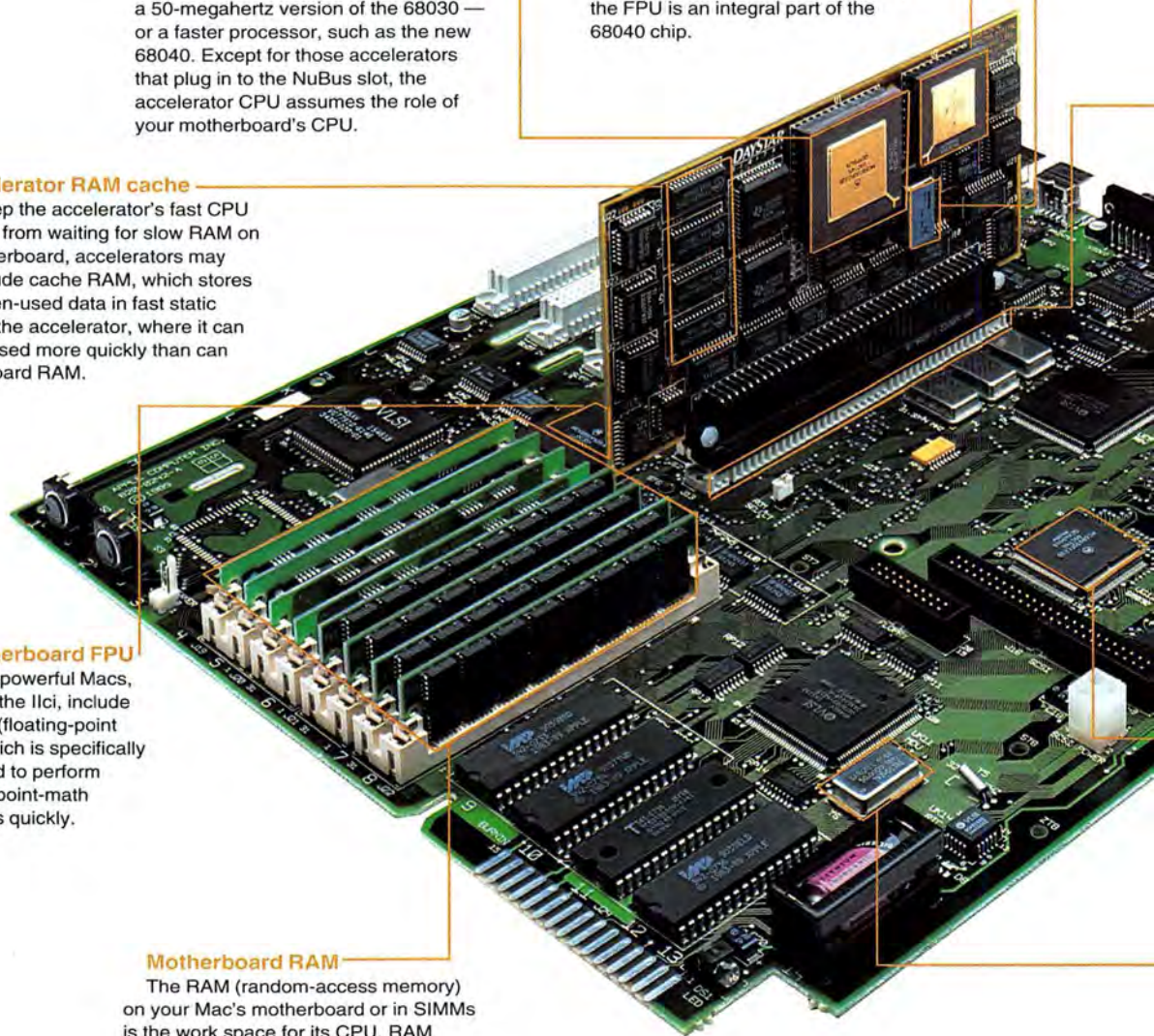
To keep the accelerator's fast CPU and FPU from waiting for slow RAM on the motherboard, accelerators may also include cache RAM, which stores most-often-used data in fast static RAM on the accelerator, where it can be accessed more quickly than can motherboard RAM.

### Motherboard FPU

More-powerful Macs, such as the IIci, include an FPU (floating-point unit), which is specifically designed to perform floating-point-math functions quickly.

### Motherboard RAM

The RAM (random-access memory) on your Mac's motherboard or in SIMMs is the work space for its CPU. RAM speed can limit acceleration. Otherwise-identical accelerators performed faster with the IIci than with the IIsi, because the IIci's RAM is faster.





30fx are factory-installed upgrades, and the Newer Technology fx/Overdrive is a clip-on CPU-socket card.

We also tested six accelerators for the IICI: The Radius Rocket and the

Impulse Technology Performance/040 are NuBus cards, and the DayStar Digital PowerCache, the Fusion Data Systems TokaMac ci, and the Sigma Designs Bullet 030 are cards that fit into the IICI's cache-card slot — the IICI's PDS equivalent. We compared these third-party accelerators with the Apple Quadra 700 Upgrade: Send your IICx or IICI, along with \$3,499, to your authorized Apple dealer, and you'll get a Quadra 700 — new motherboard, new case.

The DayStar PowerCache and the Sigma Bullet 030 can also be used in the IIsi, so we tested them on both the IICI and the IIsi. We also tested two more PDS cards for the IIsi: the Total Systems Magellan 040 and the Fusion Data Systems TokaMac SX.

Finally, we looked at the Fusion Data Systems TokaMac LC, a PDS card for the LC.

### Accelerators Galore

In addition to CPU acceleration, you have a dizzying array of options when it comes to speeding up your Mac. However, other acceleration strategies — such as video accelerators, fast-SCSI cards, and math coprocessors — are targeted for specific tasks. For example, a video accelerator is designed to act as a video *coprocessor* — only QuickDraw commands are sent to the video accelerator for processing, freeing the CPU from the task. In many cases — such as redrawing Canvas illustrations — you won't notice any speed improvement with a video accelerator (see "Chasing Rainbows: Accelerated-Video Cards," May '92, Buyer's Guide page 16).

On the other hand, a CPU accelerator speeds up most remaining processing. As its name implies, your Mac's CPU — *central processing unit* — is the brain of your Mac: All the instructions from the applications you run and the data these applications work with are handled by this chip. The CPU also transfers data to and from memory and manages control to I/O (input/output) devices — keyboard, monitor, and hard drives, for

example. In the original Mac, this CPU was a relatively modest performer, the Motorola 68000.

Subsequent Macs have incorporated increasingly more-powerful CPUs; for example, the first LC used the 68020, and the IIfx, IICI, IIsi, and LC II all use the 68030. The performance of the 68030 is greatly improved over that of previous CPUs, thanks to built-in data and instruction *caches*, areas of the CPU set aside for speedy access to the data and instructions being processed. The 68020 has only an instruction cache. The Quadra is the first Mac to use the 68040, which has a built-in *FPU* (floating-point unit) — a math coprocessor. (In machines using the 68030, the math coprocessor is a separate chip.) The 68040 also has its own unique cache system, which is the source of many software-incompatibility problems.

### Same Chip, More Zip

In addition to the processor model — 68020, 68030, or 68040 — your CPU's *clock speed*, described in megahertz (millions of cycles per second), sets the pace for how much work can be accomplished in a given time. Your CPU relies on this clock to synchronize all of its processing: instructions and data, input and output requests, and so on (see the "How It Works: Accelerating Your Mac" sidebar). The clock speed is controlled by a crystal on the Mac's motherboard. The higher the clock frequency, the faster the clock speed.

That's one reason why there's a difference in speed among Macs that use the same chip: the 40-megahertz 68030 in the IIfx has more zip than does the 25-megahertz 68030 in the IICI and the 20-megahertz 68030 in the IIsi. Currently, the fastest Mac processor is the 33-megahertz 68040. At the same clock speed, a 68040 can carry out about twice the number of instructions as a 68030 can. But if the 68030 were sped up to 50 megahertz and the 68040 were running at only 25 megahertz — and if the instructions being processed were identical

#### Accelerator clock

The clock on the accelerator determines the speed at which the CPU, FPU, and other accelerator components run.

#### IICI cache-card connector

The cache-card connector is the IICI's interface to an accelerator card. On other Macs, accelerators plug in to the PDS (processor-direct slot) or a NuBus slot or replace chips removed from the motherboard.



#### Motherboard CPU

The CPU (central processing unit) is your Mac's brain. Its type and speed determine the maximum performance you can expect from your unaccelerated Mac system.

#### Motherboard clock

The clock on your motherboard sets the speed at which your CPU, FPU, and other components on your Mac's motherboard run.



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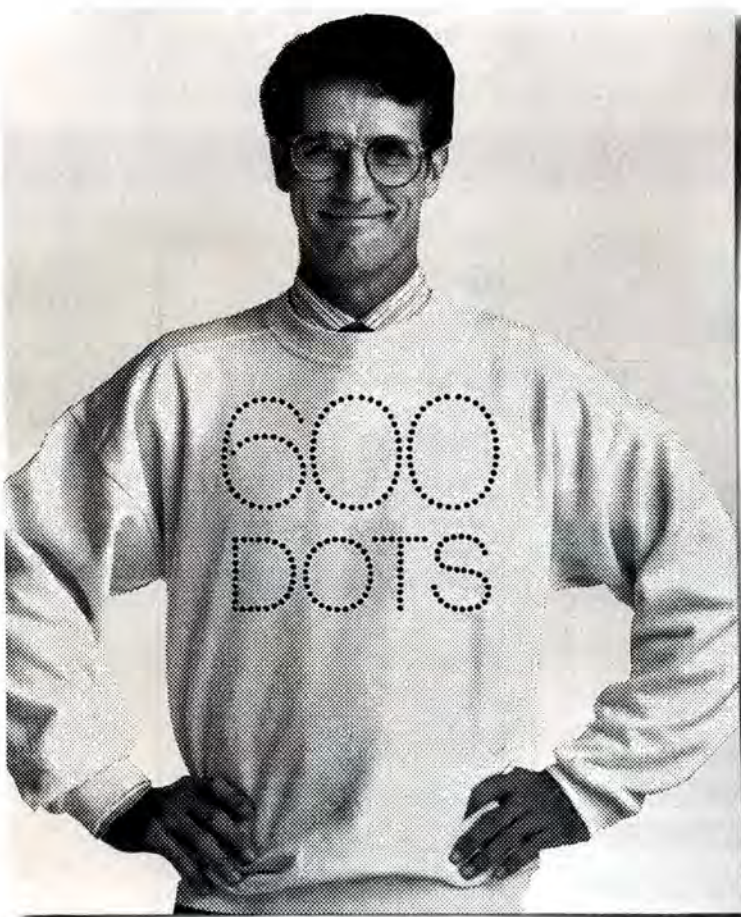
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# INTERS. PAGES AHEAD.



—both chips would complete the tasks in about the same time.

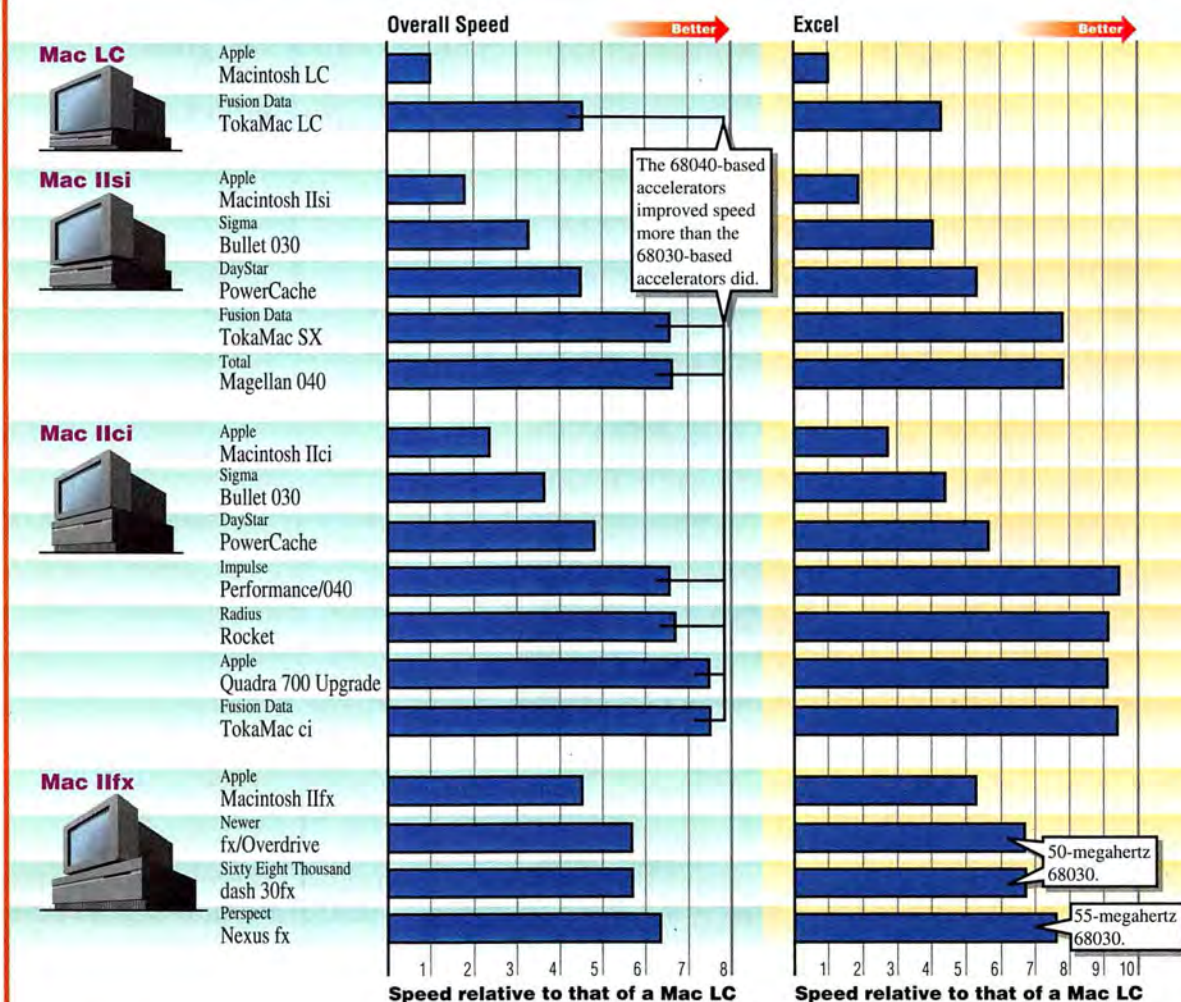
Why are we torturing you with all these details? Because one approach to CPU acceleration involves simply

boosting the frequency of the clock. Another approach involves replacing or superseding the CPU itself with a more powerful chip: You can do this by removing the CPU from its socket

on your Mac's motherboard or by slipping a card containing a more powerful CPU into a NuBus slot or a PDS.

Boosting the clock frequency is the least expensive method of the two,

**Figure 1: Speed of CPU Accelerators**



**Figure 1:** Hankering for a faster Mac? The accelerators we tested use a variety of methods to speed up your Mac. You can replace your Mac's CPU with a more powerful processor or speed up your existing processor by boosting its clock speed. We put a dozen accelerators through their paces with three 68040-compatible applications. We tested the DayStar PowerCache and the Sigma Bullet 030 on both the Mac IIci and the Mac IIx.

## Overall Speed:

The fastest overall were the 68040-based accelerators: The Apple Quadra 700 Upgrade for the IIci tied for overall top honors with the Fusion Data TokaMac ci. The TokaMac LC with the Mac LC was as

fast as a stock Mac IIfx. For the IIx, the Total Magellan 040 squeaked by the Fusion Data TokaMac SX. The 68030-based Perspect Nexus fx was the fastest accelerator for the Mac IIfx, but it still came in behind all the 68040-based accelerators except for the Fusion Data TokaMac LC.

## Excel:

You can give your general-purpose business tasks a shot in the arm with a CPU accelerator: Of the three applications we tested, recalculating a complex financial spreadsheet in Excel 3.0 showed the most speed improvement from a CPU accelerator. The Fusion Data TokaMac ci and the Impulse Performance/040 outperformed

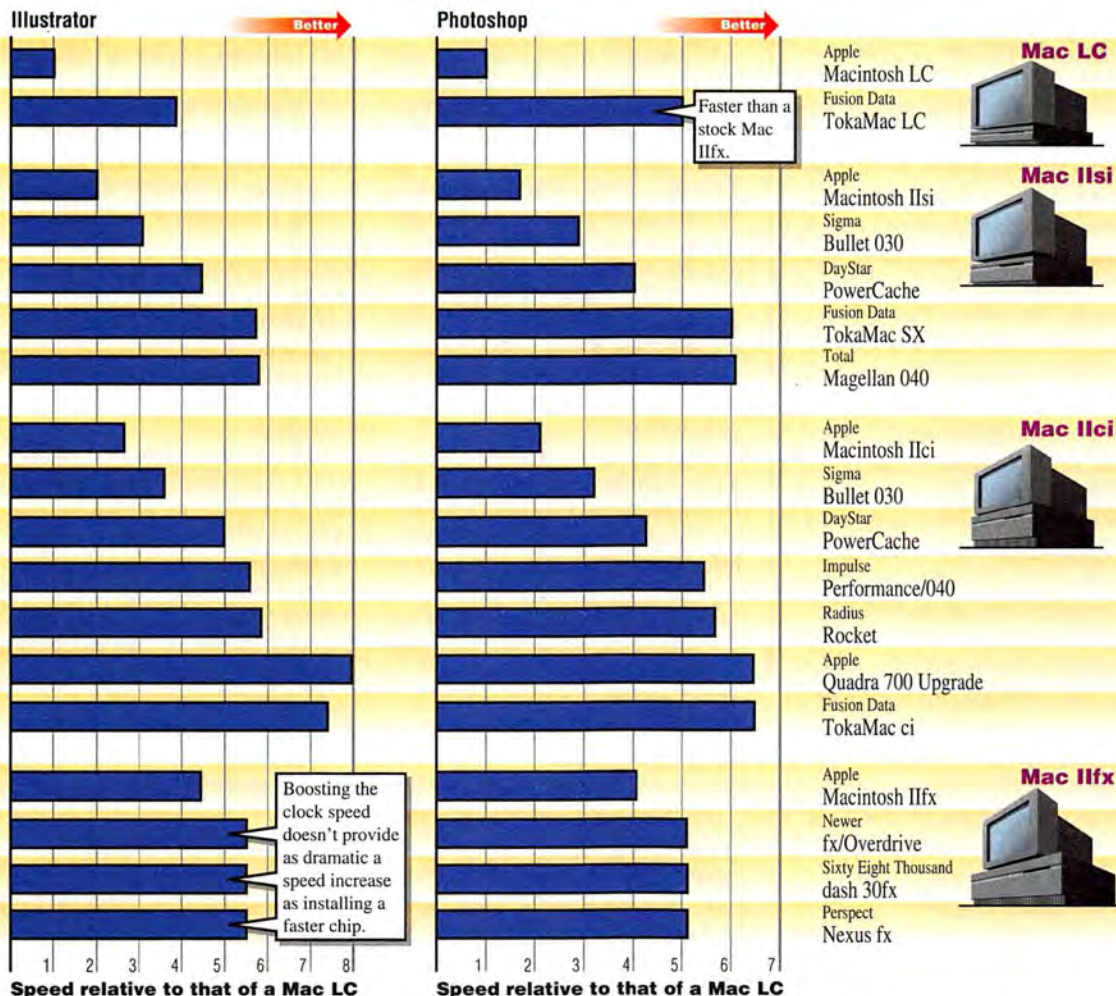


but some chip manufacturers, including Motorola, warn that the CPU can be damaged if you force it to operate at speeds it wasn't designed for, because increasing the chip's frequency

also increases its operating temperature. Fortunately, vendors that use this method also attach *heat sinks* to the main processor to reduce the temperature of the chip.

## Brain Surgery

As you've probably gathered, installing a CPU accelerator can be a delicate operation: One false move, and \$1,000 worth of semiconductors



the Apple Quadra 700 Upgrade, which tied with the Radius Rocket. The faster clock speed of the Perspect Nexus fx scooted it ahead of the other Mac IIfx-based upgrades.

### Illustrator:

Don't think that CPU accelerators are just for hobbyists: Graphic designers can also benefit from speed gains. Previewing a complex Illustrator 3.0 image was much faster with a CPU accelerator than without. The Apple Quadra 700 Upgrade was the fastest, ahead of the Fusion Data TokaMac ci. The Total Magellan 040 was just slightly faster than the Fusion Data TokaMac SX. Both of these IIsi accelerators narrowly outperformed the three IIfx accelerators.

Boosting the clock speed doesn't provide as dramatic a speed increase as starting with a faster chip.

### Photoshop:

Photoshop can give your CPU an intense workout. We applied the Spherize filter within Photoshop 2.0. Although the Apple Quadra 700 Upgrade and the Fusion Data TokaMac ci were once again the fastest, the Fusion Data TokaMac LC's performance was impressive: The TokaMac LC-equipped LC was only slightly slower than the accelerated Mac IIfx machines. The Fusion Data TokaMac SX and the Total Magellan 040 came in second, at more than three times the speed of a stock Mac IIsi.



can turn into useless silicon. For example, installing a Newer Technology fx/Overdrive into a Mac IIx requires the dexterity of a neurosurgeon: You must pull the CPU and the FPU from their sockets on the motherboard and then put the fx/Overdrive, which contains its own CPU and a faster FPU, back into your CPU and FPU sockets. You also must connect some ill-fitting clips from the card to your motherboard's clock.

The net result of all this finessing is that your Mac's clock speed can be increased from its native 40 megahertz to 45, 50, or 55 megahertz; the speed is easy to set through a control panel, and you don't need to reboot between different settings. Newer Technology guarantees that it'll refund your money if you don't get at least 25 percent more speed than with a stock machine. To gain that speed, however, you must also upgrade your on-board RAM to fast, 60-nanosecond SIMMs (single in-line memory modules), a tiny detail not mentioned in the Newer fx/Overdrive manual.

The other two Mac IIx upgrades — the Perspect Nexus fx and the Sixty Eight Thousand dash 30fx — lie at the other end of the installation scale: They're both very easy to install, because the vendors do the dirty work for you. Send either of these companies your Mac IIx, and get back a faster machine: no muss, no fuss. Like the Newer fx/Overdrive, the Perspect Nexus fx speeds up your processor's clock. The Perspect Nexus fx, a CPU-socket card made by Tech Noir, has cache memory and a faster clock that bumps the clock speed up to 55 megahertz. Perspect Systems also installs heat sinks onto your CPU and FPU to absorb any extra heat generated.

Unlike the Newer fx/Overdrive, which can be removed, the Perspect Nexus fx is a permanent modification, so you'll void your Apple warranty — if your Mac IIx is still covered. On the plus side, however, Perspect guarantees not only its work but your entire motherboard as well for a whole year. Perspect claims that

## On the Horizon

Accelerators will soon be faster and less expensive, thanks to new microprocessors and hardware designs. This past April, Motorola released a 33-megahertz 68040 CPU chip commercially. Expect to see this newest and fastest 68040 move to the top of every accelerator maker's product line: The 33-megahertz 68040 leaves even a 50-megahertz 68030 in the silicon dust.

Motorola also released the 040LC and the 040EC. The 040LC lacks the FPU (which few people use) of a full-fledged 68040; the 040EC lacks both the FPU and the memory-management unit. Each costs less than the 68040, so you'll be able to buy an accelerator based on one of these chips for far less — good news for folks with smaller budgets. For example, at \$1,499, the 040LC-based Radius Rocket 25i is about \$500 less than a regular Rocket, and at \$1,299, the 040EC-based Fusion Data Systems TokaMac ELC costs almost \$1,200 less than the TokaMac LC, which has a garden-variety 68040.

Not content to wait for further enhancements to the Motorola chip line, Radius recently announced a revolutionary method of harnessing the power of multiple 68040-based Rocket accelerators that should be available by the time you read this. This software, which is called RocketShare, will use System 7's built-in IAC (interapplication

communication) capability to distribute processing among two or more Rockets sitting in your Macintosh's NuBus slots. Future extensions to RocketShare promise to distribute that processing among any Rocket-based Macintoshes over an AppleTalk network.

Other vendors are looking beyond the Motorola family for more power. Some RISC (reduced-instruction-set computer) chips can make most applications run 10 to 20 times faster. Moreover, RISC-based speed gains are scalable: Using two RISC chips can result in almost twice the speed improvement. Unfortunately, Mac applications can't run directly on RISC chips: Mac software must be rewritten to run on the RISC chip, or the RISC chip must emulate a 68000. But a 68000-emulating RISC chip, busy with translation, would lose much of its performance gain, and rewriting complete applications from the ground up to run on RISC would be costly and time-consuming.

It's a lot easier to move just some functions — image filtering, rasterization, and financial modeling, for example — from the Mac to a RISC processor. For example, SuperMac is designing the ThunderBolt, an add-on daughtercard with an LSI RISC chip that connects to the open slot of the SuperMac Thunder/24 video accelerator.

you can expect a 37.5-percent performance improvement.

Whereas Perspect modifies only your motherboard and returns your IIx case unchanged, Sixty Eight Thousand replaces most of the components of your IIx and repackages everything in a Quadra-900-like tower called the dash 30fx. Like the vendors of the other two IIx accelerators, Sixty Eight Thousand boosts the clock speed of the chip on your motherboard — in this case, to 50 megahertz. But Sixty Eight Thousand also gives you 8 megabytes of fast (70-nanosecond) RAM, a fast-SCSI-2 card, a 250-watt power supply, and a pair of fans to cool all these components, and it packs them all in a 2-foot-high, lockable tower. The internal hard drive from your IIx gets tucked safely into one of the dash 30fx's storage bays. All

this is in exchange for your Mac IIx and \$3,995; without your Mac, the package costs \$11,000.

## A Simple Office Procedure

Mac acceleration doesn't need to involve putting your Mac under the knife. If you own a Mac IIx or IICi, the Apple Quadra 700 Upgrade can give you Quadra speed without making you sacrifice your warranty. Simply take your Mac IIx or IICi to your local authorized Apple dealer for conversion into a Quadra 700 — 68040 processor, built-in 24-bit-color video, sound-input port, and faster SCSI interface, in a Quadra 700 case.

The other accelerators for the Mac IICi, IISI, and LC simply replace the CPU with a faster processor on a PDS or NuBus card. After you've installed the card, just drop a control panel into



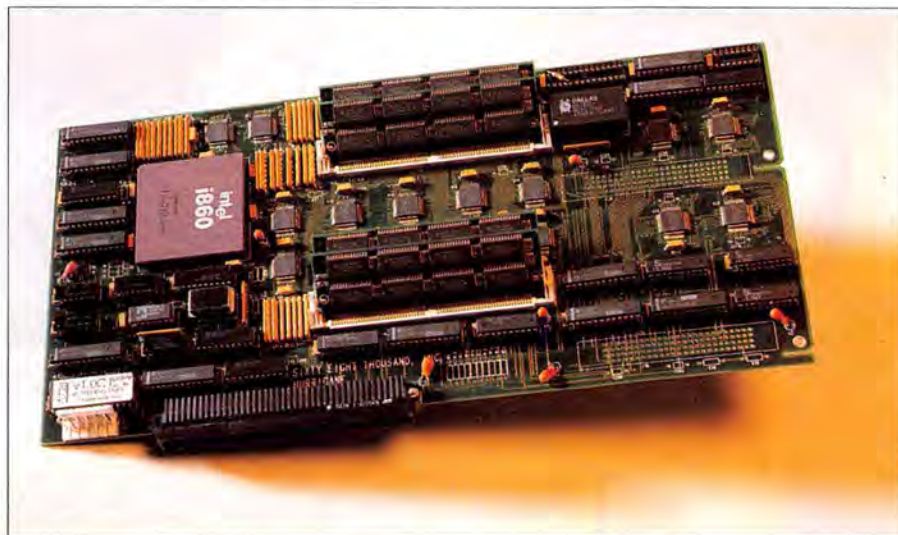
While the Thunder/24 handles the low-level QuickDraw calls, other portions of an application's code can be sent to the RISC chip for processing. Adobe, Aldus, Apple, and Quark are all working with SuperMac to develop products that will be able to take advantage of the ThunderBolt's processing power.

Another RISC-based scheme is the Intel i860-based Hurricane, from Sixty Eight Thousand. This coprocessor card fits into

the PDS of the Sixty Eight Thousand dash 30fx or the just-released dash 40fx, which uses the 68040 processor. Your Macintosh applications can use this card thanks to an intermediary processing environment called Tuplex, from Torque Systems, of Palo Alto, California. Tuplex resides in the Hurricane's ROM. Rather than addressing the RISC chip directly, Mac applications make calls to Tuplex, which in turn delegates instructions to one or more RISC

processors and returns the results to the Mac application.

Developers are busy writing hooks to let Macintosh applications tap in to the Tuplex environment. In the near future, you could fit as many as 16 Hurricane cards into your dash 30fx or 40fx, thereby pushing the potential performance into the range of that of a Cray supercomputer. And Tuplex promises to bring that power to Macintosh applications.



**A Cray on a card? As soon as Mac developers write hooks into the Tuplex environment, dash 30fx users will be able to harness the power of the Intel i860 RISC chip on the Sixty Eight Thousand Hurricane card. Expect speed 10 to 20 times faster than that of a stock Mac IIx.**

your System Folder and reboot.

The DayStar PowerCache, Fusion Data TokaMac cards, Sigma Bullet 030, and Total Magellan 040 all plug in to your Mac's cache-card slot or PDS. The DayStar PowerCache and Sigma Bullet 030 contain fast (50-megahertz) 68030 processors; the Fusion Data TokaMac cards and the Total Magellan 040 contain 68040 processors.

The Impulse Performance/040 slips into any Mac that has a NuBus slot. The Radius Rocket works with all NuBus Macs except the IIfx. Although this method may seem as easy as plugging in a PDS card, NuBus-based accelerators require that you put RAM SIMMs onto the cards. Although you can move some of your motherboard's RAM to the accelerator, you'll have to leave some behind so your Mac can

boot and start the accelerator. The Radius Rocket can take SIMMs rated at 60, 70, 80, 100, or 120 nanoseconds; a jumper on the card lets you select among these speeds when installing the SIMMs. Radius claims that you'll need at least 4 megabytes of memory on the motherboard to boot the Rocket. In contrast, the Performance/040 needs only 2 megabytes on the motherboard to boot the card.

Because of this divided memory, boot-up becomes an odd proposition: First, your Mac starts up and copies its ROMs to the accelerator memory, and then the accelerator itself boots. The on-board RAM also causes the NuBus cards to draw more power than PDS accelerator cards do — potentially more than the NuBus can safely handle. For example, the Impulse Technology Performance/040 and the

Radius Rocket both draw the maximum power allocated to a NuBus slot — 12.5 watts — without any RAM installed on the card. Although we didn't have any power-related problems during our tests, a power-hungry accelerator might limit your Mac's expansion potential.

### Cache of the Titans

Before testing speed, we checked compatibility. CPU accelerators used to be notorious for creating timing-related problems on the Mac that disrupted sound-file playback, floppy-disk formatting, and AppleTalk-network connections. We checked these areas and found no problems. We also tested for compatibility with AppleTalk Remote Access. Although both NuBus cards — the Radius Rocket and the Impulse Performance/040 —



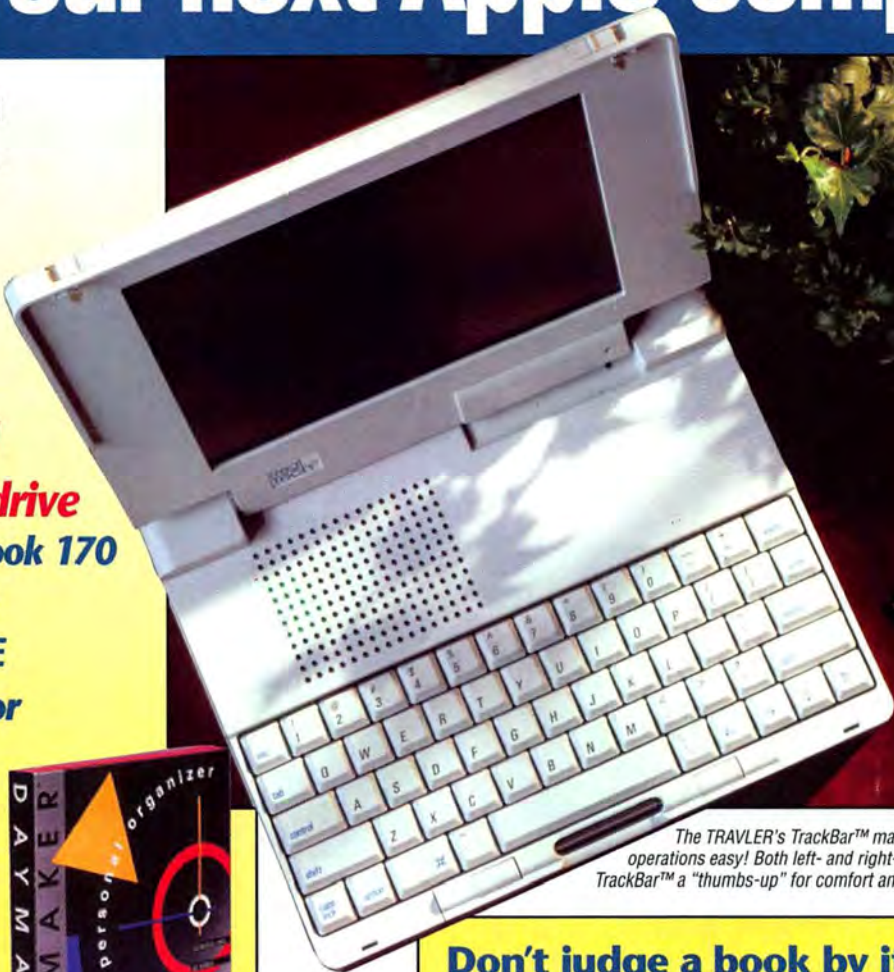
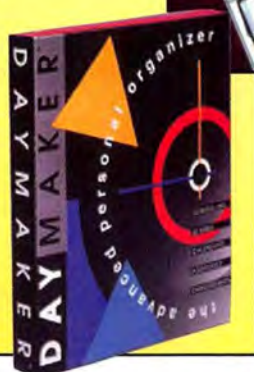
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**Figure 2:** A tower of power. Although the Sixty Eight Thousand dash 30fx isn't the fastest accelerator in its class and costs a full \$1,000 more than competing products in this report, it does offer some benefits you won't find elsewhere. Give your Mac IIx and \$3,995 to your local Sixty Eight Thousand dealer, and you get back a fast-SCSI-2 card for faster disk operations, 8 megabytes of 70-nanosecond RAM, a 250-watt power supply, and any drives you may already have installed in your old IIx — all enclosed in a well-ventilated tower case.

functioned properly with normal LocalTalk connections, they were unable to boot with AppleTalk Remote Access installed. The drivers for the NuBus cards conflict with patches to the AppleTalk protocol stack made by AppleTalk Remote Access.

The introduction of the 68040 — and the design of its built-in cache — has added another wrinkle to the compatibility issue: Some applications, such as older versions of Word 4.0, simply won't work with a 68040 processor. Such applications need to be modified to work with the 68040's built-in cache.

Fortunately, all the accelerators that are based on a 68040 microprocessor — the Apple Quadra 700 Upgrade; Fusion Data TokaMac ci, LC, and SX; Impulse Performance/040; Radius Rocket; and Total Magellan 040 — let you disable the 68040's cache so that incompatible applications can still run on your Mac. And except for the Apple Quadra 700 Upgrade, all the 68040-based accelerators let you — through a list in the accelerator's control panel — select the mode at which each of your applications should

run. You can, for example, set Word 4.0 to run in the 68030 cache mode and Illustrator 3.0 to run in the 68040 cache mode. When you launch either of these applications, your Mac automatically switches modes. (CacheOut, a control panel available on ZiffNet/Mac, enables Quadra 700 users to control cache modes on the fly. CacheOut is available exclusively in Library 3 [INITs, cdevs, FKEYs] of the Download & Support Forum; the filename is CACHEO.CPT.)

Such "hot switching" can keep your Mac from crashing, but unfortunately, connections to your network may be disturbed. When your Mac changes modes, the AppleTalk timing protocols are affected; printers may intermittently disappear from the Chooser, for example. Total Systems has announced an upgrade to its software that it claims will fix this problem.

### How Fast Is Fast?

We gave each product a thorough workout, using three 68040-compatible applications. We recalculated a financial spreadsheet in Excel 3.0, previewed a complex Illustrator 3.0

## The Bottom Line

A CPU accelerator gives your entire Macintosh a performance boost by replacing or speeding up its main processor. And unlike the products of old, these accelerators, for the most part, are easy to install: Many are PDS cards that slip neatly into your Mac's PDS. Drop the control panel into your System Folder, and away you go.

If you want to get more oomph out of a 68020-based Macintosh LC, get the **Fusion Data Systems TokaMac LC** (\$2,495 list, \$1,995 street): You'll get Macintosh IIx performance.

Of the Mac IIsi accelerators, the **Total Systems Magellan 040** (\$2,249 direct) was the fastest, slightly ahead of the **Fusion Data Systems TokaMac SX** (\$2,595 list, \$2,095 street). Although it's slightly slower, the **DayStar Digital PowerCache** (\$2,048 list, \$1,719 street) is a good choice if you want a little hand-holding: It's simple to

document, and applied the Spherize filter within Photoshop 2.0 (see Figure 1). Each of these applications taxes a different aspect of CPU activity and is a good indicator of the overall speed improvement possible.

Our results really highlight the power of the chip: The 68040-based accelerators were the fastest products, regardless of Mac model. For example, the Mac LC with the 68040-based Fusion Data TokaMac LC installed was more than four and a half times as fast as the stock LC — and it matched a stock IIx. The IIsi with the Fusion Data TokaMac ci and the IIsi with the Apple Quadra 700 Upgrade tied for fastest of all the models. Next came the Mac IIsi with the Fusion Data TokaMac SX and the Total Magellan 040.

The Sigma Bullet 030's performance was disappointing, but the Bullet 030 also has a Stac chip for on-board compression. With the Bullet 030, Sigma packages Salient's Disk-Doubler software, which lets you squeeze twice the rated capacity onto your hard disk. The Stac chip eliminates the overhead — and hence, the



install, and it has an outstanding upgrade path.

The **Apple Quadra 700 Upgrade** (\$3,499 list, \$3,400 street) for the Mac IIcx or IIci is the fastest. Plus, you get the other Quadra features that you don't get with any other acceleration scheme: on-board 24-bit-color video, a fast-SCSI-2 controller, and built-in sound capabilities, for example.

The **Fusion Data Systems TokaMac ci** (\$2,595 list, \$2,095 street) was the fastest accelerator overall, matching the Quadra 700 for speed in our tests. For all-out speed in your Mac IIci, this is the card to get. If your cache-card slot or PDS is occupied, the **Radius Rocket** (\$1,499 list, \$1,425 street) is the next-best bet. With the promise of parallel processing through its RocketShare software (see the "On the Horizon" sidebar), using a Radius Rocket may be a great way to reduce long rendering times.

Finally, if you own a Mac IIfx and are feeling forgotten, fear not: The **Perspect Systems Nexus fx** (\$1,295 direct) will give your Mac IIfx the fastest speed for the least cost. Although not as fast as the Nexus fx,

the **Sixty Eight Thousand dash 30fx** (\$3,995 list, \$3,995 street) can turn your fast Mac into a powerhouse server with its additional features: fast hard-disk drive, fast RAM, and fast SCSI, for example.



Our bottom-line picks for faster processing (clockwise from left): The DayStar Digital PowerCache, Radius Rocket, Total Systems Magellan 040, and Fusion Data TokaMac accelerators.

slowdown — associated with software-based compression. The Sigma Bullet 030 is a fast compression card but not such a fast CPU accelerator.

The Mac IIfx accelerators didn't boost speed much, relatively speaking, above the level of the stock machine. Keep in mind, though, that with an upgrade such as the Sixty Eight Thousand dash 30fx, you're getting a lot more for your money — the fast-SCSI-2 card and high-speed RAM, for example.

### Get to the Store Fast

The Quadra 700 has more going for it than just a faster CPU: It has built-in video and sound, for example. But not everybody needs — or can afford — all the extras that come with this machine. It can be hard to justify buying a new computer every two years, particularly when the one you have is probably doing just fine — except that it seems, well, too darn slow.

You have lots of other types of acceleration schemes to choose from, but such products — video accelerators, cache cards, and fast-SCSI-2 cards, for example — are usually tar-

geted at specific types of work. On the other hand, CPU accelerators speed up the very core of your computer, its main processor. Methods vary, but in general, replacing your CPU with a more powerful chip such as a 68040 gives the best results. Replacement cards come in both NuBus and PDS models; we found that the PDS and

cache-card-slot cards were not only the fastest but also the easiest to install. Look to the "Bottom Line" sidebar — and then go breathe new life into your Mac.

Winn L. Rosch is the author of *The Winn Rosch Hardware Bible*, the second edition of which is due this summer.

## Table 1 Criteria

**List price** — The manufacturer's suggested retail price for the card without options.

**Street price** — The average actual price of the card without options from a sample of dealers around the U.S. in February 1992.

**Installation method** — The method of installing the faster CPU or accelerating the existing CPU. Accelerators can be cards that fit in your Mac's NuBus slots or PDS, or they can be factory-installed upgrades.

**Clock speed** — The clock-speed rating of the accelerator's clock, in megahertz.

**CPU, speed** — The central processing unit the accelerator uses and the CPU's rated speed, in megahertz.

**FPU, speed** — The floating-point unit the accelerator uses and the FPU's rated speed, in megahertz. (Note that the 68040 has a built-in FPU.)

**RAM cache** — The size of the cache for the accelerator's processor.

**Power consumption** — The maximum power consumption of the accelerator card, in watts.

**Special SIMMs required** — The speed of the SIMMs required after the accelerator is installed, in nanoseconds.

**Expansion ports** — Extra expansion ports provided by the accelerator.





**Static strap** — Does the accelerator ship with a static strap to reduce the chance of static shock during installation?

**Accelerator disable** — Does the accelerator's software let you turn off the accelerator?

**Cache disable** — Does the accelerator's software let you turn off the processor's cache?



**Table 1: Features of CPU Accelerators**

|                        |    |                     |               |              |
|------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| ● = yes<br>○ = no      | <b>Apple<br/>Quadra 700 Upgrade</b><br>★★★★½                                        | <b>DayStar<br/>PowerCache</b><br>★★★★                                                                | <b>Fusion Data<br/>TokaMac ci</b><br>★★★★                                                       | <b>Fusion Data<br/>TokaMac LC</b><br>★★★★                                                       |
| <b>List price</b>      | \$3,499                                                                             | for Ilci, \$1,949;<br>for Ilsi, \$2,048                                                              | \$2,595                                                                                         | \$2,495                                                                                         |
| <b>Street price</b>    | \$3,400                                                                             | for Ilci, \$1,669;<br>for Ilsi, \$1,719                                                              | \$2,095                                                                                         | \$1,995                                                                                         |
| <b>Pros</b>            | Fastest. Fast SCSI controller. 24-bit color. Sound-in port.                         | Includes second PDS.                                                                                 | As fast as the Quadra.                                                                          | Ilfx speed.                                                                                     |
| <b>Cons</b>            | Some software not compatible with 68040 processor.                                  |                                                                                                      | Some software not compatible with 68040 processor.                                              | Some software not compatible with 68040 processor.                                              |
| <b>Platform tested</b> | Ilci                                                                                | Ilci, Ilsi                                                                                           | Ilci                                                                                            | LC                                                                                              |
| <b>Macs supported</b>  | Ilcx, Ilci                                                                          | Il, Ilx, Ilcx, * Ilci, LC, † Ilsi                                                                    | Ilci                                                                                            | LC                                                                                              |
| <b>Hardware</b>        |                                                                                     |                                                                                                      |                                                                                                 |                                                                                                 |
| Installation method    | factory-installed                                                                   | cache card                                                                                           | cache card                                                                                      | PDS card                                                                                        |
| Clock speed            | 25 MHz                                                                              | 50 MHz                                                                                               | 25 MHz                                                                                          | 25 MHz                                                                                          |
| CPU, speed             | 68040, 25 MHz                                                                       | 68030, 50 MHz                                                                                        | 68040, 25 MHz                                                                                   | 68040, 25 MHz                                                                                   |
| FPU, speed             | none                                                                                | 68882, 50 MHz                                                                                        | none                                                                                            | none                                                                                            |
| RAM cache              | 8K in 68040                                                                         | 32K                                                                                                  | 8K in 68040                                                                                     | 8K in 68040                                                                                     |
| Power consumption      | NA                                                                                  | 10 watts                                                                                             | 4.9 watts                                                                                       | 3.7 watts                                                                                       |
| Special SIMMs required | 80 ns                                                                               | none                                                                                                 | none                                                                                            | none                                                                                            |
| Expansion ports        | PDS                                                                                 | none                                                                                                 | none                                                                                            | none                                                                                            |
| Static strap           | NA                                                                                  | ●                                                                                                    | ○                                                                                               | ○                                                                                               |
| <b>Software</b>        |                                                                                     |                                                                                                      |                                                                                                 |                                                                                                 |
| Accelerator disable    | ○                                                                                   | ○                                                                                                    | ●                                                                                               | ●                                                                                               |
| Cache disable          | ●                                                                                   | ●                                                                                                    | ●                                                                                               | ●                                                                                               |
| <b>Warranty</b>        |                                                                                     |                                                                                                      |                                                                                                 |                                                                                                 |
| Length                 | 1 year                                                                              | 1 year                                                                                               | 1 year                                                                                          | 1 year                                                                                          |
| Money-back guarantee   | none                                                                                | 30 days                                                                                              | 30 days                                                                                         | 30 days                                                                                         |
| Tech support           | toll call                                                                           | toll free                                                                                            | toll call                                                                                       | toll call                                                                                       |
| <b>Company</b>         | Apple Computer, Inc.<br>20525 Mariani Ave.<br>Cupertino, CA 95014<br>(408) 996-1010 | DayStar Digital<br>5556 Atlanta Hwy.<br>Flowery Branch, GA 30542<br>(800) 962-2077<br>(404) 967-2077 | Fusion Data Systems<br>8920 Business Park Dr.<br>Ste. 350<br>Austin, TX 78759<br>(512) 338-5326 | Fusion Data Systems<br>8920 Business Park Dr.<br>Ste. 350<br>Austin, TX 78759<br>(512) 338-5326 |

\* Ilcx's with unsocketed CPU chips can be sent to DayStar for a free socket installation.





† The LC model was unavailable at test time.



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call you crazy.**



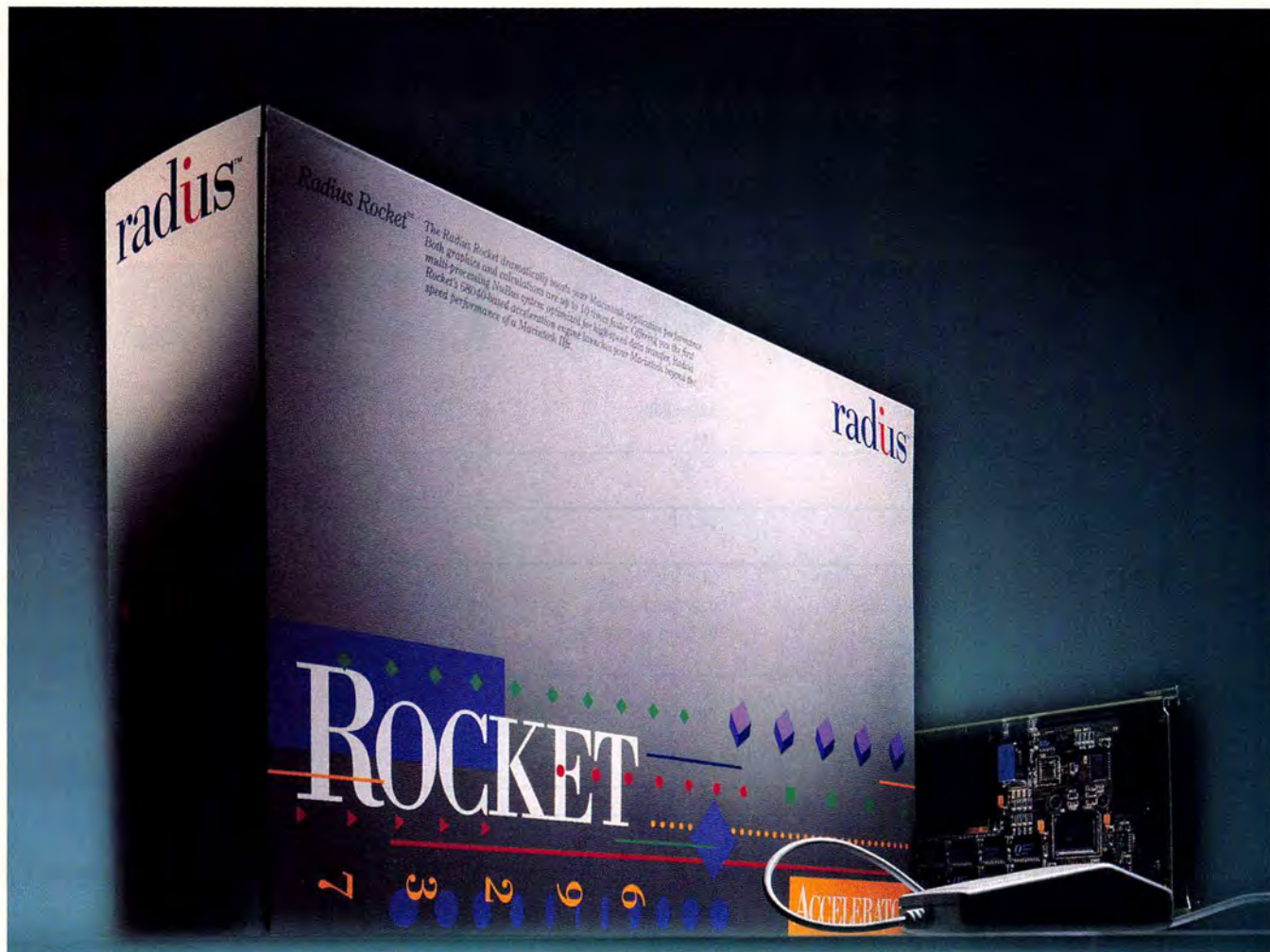
**Table 1: Features of CPU Accelerators, continued**

|                        |                |          |                         |           |
|------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| ● = yes<br>○ = no      | <b>Fusion Data<br/>TokaMac SX</b><br>★★★★                                                       | <b>Impulse<br/>Performance/040</b><br>★★★★½                                               | <b>Newer<br/>fx/Overdrive</b><br>★★★                                                                      | <b>Perspect<br/>Nexus fx</b><br>★★★★½                                                        |
| <b>List price</b>      | \$2,595                                                                                         | \$2,195                                                                                   | \$1,995                                                                                                   | \$1,295                                                                                      |
| <b>Street price</b>    | \$2,095                                                                                         | \$1,750                                                                                   | \$1,650                                                                                                   | \$1,295                                                                                      |
| <b>Pros</b>            | Fast.                                                                                           | Fast. Includes second PDS.                                                                | Money back if not compatible with your IIx motherboard.                                                   | Fast. Entire motherboard covered by warranty.                                                |
| <b>Cons</b>            | Some software not compatible with 68040 processor.                                              | Some software not compatible with 68040 processor. Many ROM revisions.                    | Requires 60-ns RAM SIMMs. May not be compatible with your IIx.                                            | Requires 60-ns RAM SIMMs. Voids Apple warranty.                                              |
| <b>Platform tested</b> | IIsi                                                                                            | IIci                                                                                      | IIx                                                                                                       | IIx                                                                                          |
| <b>Macs supported</b>  | SE/30, IIsi                                                                                     | II, § IIx, IIcx, IIci, IIx, IIsi w/ adapter (NuBus)                                       | IIx                                                                                                       | IIx                                                                                          |
| <b>Hardware</b>        |                                                                                                 |                                                                                           |                                                                                                           |                                                                                              |
| Installation method    | PDS card                                                                                        | NuBus card                                                                                | CPU-socket card                                                                                           | factory-installed                                                                            |
| Clock speed            | 25 MHz                                                                                          | 25 MHz                                                                                    | 45, 50, 55 MHz <sup>o</sup>                                                                               | 55 MHz                                                                                       |
| CPU, speed             | 68040, 25 MHz                                                                                   | 68040, 25 MHz                                                                             | 68030, 50 MHz                                                                                             | 68030, 40 MHz                                                                                |
| FPU, speed             | none                                                                                            | none                                                                                      | 68882, 50 MHz                                                                                             | 68882, 40 MHz                                                                                |
| RAM cache              | 8K in 68040                                                                                     | 8K in 68040                                                                               | none                                                                                                      | 128K                                                                                         |
| Power consumption      | 4.5 watts                                                                                       | 12.5 watts                                                                                | 2.2 watts                                                                                                 | 4 watts                                                                                      |
| Special SIMMs required | none                                                                                            | 80 ns                                                                                     | 60 ns                                                                                                     | 60 ns                                                                                        |
| Expansion ports        | none                                                                                            | PDS                                                                                       | none                                                                                                      | none                                                                                         |
| Static strap           | ○                                                                                               | ○                                                                                         | ●                                                                                                         | NA                                                                                           |
| <b>Software</b>        |                                                                                                 |                                                                                           |                                                                                                           |                                                                                              |
| Accelerator disable    | ●                                                                                               | ●                                                                                         | ●                                                                                                         | ○                                                                                            |
| Cache disable          | ●                                                                                               | ●                                                                                         | NA                                                                                                        | ○                                                                                            |
| <b>Warranty</b>        |                                                                                                 |                                                                                           |                                                                                                           |                                                                                              |
| Length                 | 1 year                                                                                          | 1 year                                                                                    | 2 years                                                                                                   | 1 year                                                                                       |
| Money-back guarantee   | 30 days                                                                                         | 30 days                                                                                   | 30 days                                                                                                   | none                                                                                         |
| Tech support           | toll call                                                                                       | toll call                                                                                 | toll free                                                                                                 | toll free                                                                                    |
| <b>Company</b>         | Fusion Data Systems<br>8920 Business Park Dr.<br>Ste. 350<br>Austin, TX 78759<br>(512) 338-5326 | Impulse Technology<br>210 Dahlonga St.<br>Ste. 205<br>Cumming, GA 30130<br>(404) 889-8294 | Newer Technology<br>7803 E. Osie St.<br>Ste. 105<br>Wichita, KS 67207<br>(800) 678-3726<br>(316) 685-4904 | Perspect Systems<br>630 Venice Blvd.<br>Venice, CA 90291<br>(800) 736-1546<br>(310) 821-7884 |

§ Installation in Mac II requires revision B or newer motherboard and optional 68851 PMMU chip.

<sup>o</sup> Tested at 50 MHz. Selectable via software. Hardware-selectable 40-MHz "disable" mode as well.






# Padded cell not included.

No one will think you're skeptical, money conscious or overly cautious for not considering the Radius Rocket 25i. Just basically insane.

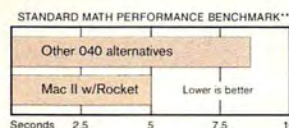
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NuBus slot and protects your current investment by utilizing your Macintosh, not replacing it. Rocket enables your existing motherboard to handle I/O commands while its 040 co-processor

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Recent tests conducted by MacWEEK show the Rocket beating the pants off other 040-based alternatives in graphics performance.



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\*©1992 Radius Inc. The Radius logo and all Radius product names are trademarks of Radius Inc. For your local Radius International Reseller, call 408-434-1010. \*\*Compatible with the Macintosh II, IIx, IIcx and IIfx. Tested under System 5 Finder with RAM cache off. Tests performed in black and white on 12- or 13-inch monitors, with AppleTalk off, minimum disk cache and extensions turned off. MacWeek 10/22/91.

**CIRCLE 195 ON READER SERVICE CARD.**



Table 1: Features of CPU Accelerators, continued

|                        |          |              |                |                |
|------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| ● = yes<br>○ = no      | <b>Radius Rocket</b><br>★★★★                                                              | <b>Sigma Bullet 030</b><br>★★★                                                                | <b>Sixty Eight Thousand dash 30fx</b><br>★★★★½                                                   | <b>Total Systems Magellan 040</b><br>★★★★                                                         |
| <b>List price</b>      | \$1,499                                                                                   | \$1,995                                                                                       | \$3,995                                                                                          | \$2,249                                                                                           |
| <b>Street price</b>    | \$1,425                                                                                   | \$1,748                                                                                       | \$3,995                                                                                          | \$2,249                                                                                           |
| <b>Pros</b>            | Very fast. Includes second PDS.                                                           | Stac chip for quick data compression. Includes second PDS.                                    | Lockable, upright metal tower case. Includes fast-SCSI-2 card and 8 MB of RAM.                   | Fastest IIsi product.                                                                             |
| <b>Cons</b>            | Some software not compatible with 68040 processor.                                        | Poor documentation. Slow.                                                                     |                                                                                                  | Poor documentation. Some software not compatible with 68040 processor.                            |
| <b>Platform tested</b> | IIsi                                                                                      | IIsi, IIsi                                                                                    | IIfx                                                                                             | IIsi                                                                                              |
| <b>Macs supported</b>  | II, IIfx, IIfx, IIsi                                                                      | IIsi, IIsi                                                                                    | IIfx                                                                                             | SE/30, IIsi, IIsi, LC                                                                             |
| <b>Hardware</b>        |                                                                                           |                                                                                               |                                                                                                  |                                                                                                   |
| Installation method    | NuBus card                                                                                | cache card (IIsi), PDS card (IIsi)                                                            | factory-installed                                                                                | PDS card                                                                                          |
| Clock speed            | 25 MHz                                                                                    | 50 MHz                                                                                        | 50 MHz                                                                                           | 25 MHz                                                                                            |
| CPU, speed             | 68040, 25 MHz                                                                             | 68030, 50 MHz                                                                                 | 68030, 40 MHz                                                                                    | 68040, 25 MHz                                                                                     |
| FPU, speed             | none                                                                                      | 68882, 50 MHz                                                                                 | 68882, 40 MHz                                                                                    | none                                                                                              |
| RAM cache              | 8K in 68040                                                                               | 32K                                                                                           | none                                                                                             | 8K in 68040                                                                                       |
| Power consumption      | 12.5 watts                                                                                | 7 watts                                                                                       | NA                                                                                               | 4.5 watts                                                                                         |
| Special SIMMs required | 100 ns                                                                                    | none                                                                                          | 70 ns                                                                                            | none                                                                                              |
| Expansion ports        | PDS                                                                                       | PDS                                                                                           | NA                                                                                               | none                                                                                              |
| Static strap           | ●                                                                                         | ○                                                                                             | NA                                                                                               | ○                                                                                                 |
| <b>Software</b>        |                                                                                           |                                                                                               |                                                                                                  |                                                                                                   |
| Accelerator disable    | ●                                                                                         | ●                                                                                             | ○                                                                                                | ●                                                                                                 |
| Cache disable          | ●                                                                                         | ●                                                                                             | NA                                                                                               | ●                                                                                                 |
| <b>Warranty</b>        |                                                                                           |                                                                                               |                                                                                                  |                                                                                                   |
| Length                 | 1 year                                                                                    | 5 years                                                                                       | 1 year                                                                                           | 1 year                                                                                            |
| Money-back guarantee   | 30 days                                                                                   | none                                                                                          | none                                                                                             | 30 days                                                                                           |
| Tech support           | toll call                                                                                 | toll call                                                                                     | toll call                                                                                        | toll call                                                                                         |
| <b>Company</b>         | Radius Inc.<br>1710 Fortune Dr.<br>San Jose, CA 95131<br>(800) 227-2795<br>(408) 434-1010 | Sigma Designs<br>47900 Bayside Pkwy.<br>Fremont, CA 94538<br>(800) 845-8086<br>(510) 821-7884 | Sixty Eight Thousand, Inc.<br>160 Technology Circle<br>Scotts Valley, CA 95066<br>(408) 438-1777 | Total Systems<br>1720 Willow Creek Circle<br>Eugene, OR 97402<br>(800) 874-2288<br>(503) 345-7395 |



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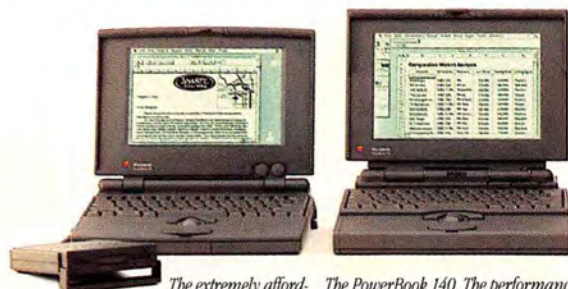
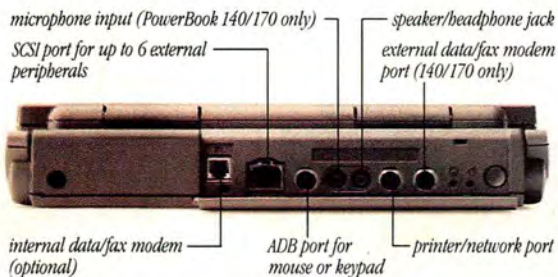
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| PowerBook | Weight  | Memory | Hard Disk | SuperDrive    | Processor                          | Internal Modem |
|-----------|---------|--------|-----------|---------------|------------------------------------|----------------|
| 100       | 5.1 lb. | 2/4MB  | 20/40MB   | Optional ext. | 16 MHz 68000                       | Optional       |
| 140       | 6.8 lb. | 2/4MB  | 40/80MB   | Internal      | 16 MHz 68030                       | Optional       |
| 170       | 6.8 lb. | 4MB    | 40/80MB   | Internal      | 25 MHz 68030/<br>68882 coprocessor | Optional       |

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SoftPC is completely compatible with Apple's System 7 software. SoftPC is a registered trademark of Insignia Solutions Inc. All other product names are trademarks or registered trademarks of their respective holders.

**CIRCLE 152 ON READER SERVICE CARD.**





Tired of waiting for Photoshop to Sharpen your scanned images? Then you'll appreciate Lightning Effects, a graphics accelerator from Spectral Innovations that's specifically designed to speed up Photoshop's image crunching. Lightning Effects (\$1,295) combines a NuBus accelerator board with software plug-ins for Sharpen, Blur, Image Resize, JPEG Compression, and more. The customized filters are up to ten times as fast as their Adobe counterparts and work with all applications that accept Photoshop plug-ins. (408) 727-1314.

By Aileen Abernathy

**Drums on the desktop:** High-end-scanner makers have jumped into the desktop-color market with a vengeance. Newly introduced tabletop drum scanners scan at 2,000 to 4,000 dpi, work with both transparent and reflective art, and are less than half the price of traditional floor units. Their photo-multiplier tubes provide greater dynamic range than do the CCD light sensors used in current desktop color scanners, and most units do scans in a single pass. ⌘ Optronics ([508] 256-4511) led the way with the **ColorGetter**, a bulky \$60,000 unit that scans a 10-x-14-inch area at 2,000 dpi. Now several vendors have leapfrogged Optronics with smaller, less expensive units that use Photoshop plug-ins for scanner control.

**The Scanmaster D4000** (right), from Howtek ([603] 882-5200), may be the best of the bunch. The Scanmaster has the highest resolution (4,000 dpi) and a large image area (10 x 10 inches), and like the ColorGetter, it has a removable drum, so you can mount images on one drum while another is being scanned. \$39,700. ⌘ Screen's **DTS-1015** has the smallest image area (5.9 x 5.9 inches) and a lower resolution (2,500 dpi), but it's the only scanner that can perform unsharp masking and RGB-to-CMYK conversions on the fly during scanning. \$38,900. (708) 870-7400. ⌘ **The ScanMate**, from Danagraf ([314] 535-8807), is a handsome unit (below) with an attractive price (\$29,995). But you get what you pay for: Its resolution is 2,000 dpi, and scanning requires three passes — the slowpoke approach.



**Taming the Font menu:** If Adobe Type Reunion isn't your cup of tea, try MenuFonts or Fontina. Both of these Font-menu organizers group

font families and display type samples, among other niceties. ⌘ **MenuFonts 4.0**, from Dubl-Click Software, displays font menus in the real typefaces — but that's only the beginning. It also indicates font format; lets you select a font by typing the first letter of its name; and sports a pop-up FontShow Box, which provides font details such as ID number and printer-font name. You can turn off

MenuFonts for specific applications (thus avoiding compatibility problems) and tweak the font list's appearance. \$69.95; upgrades, \$25. (818) 700-9525. ⌘ **Fontina**, from Eastgate Systems, eschews scrolling lists. Instead, it displays the entire contents of the Font menu — and the Apple menu! — in multiple columns. \$69.95; upgrade, \$19.95. (617) 924-9044. ⌘





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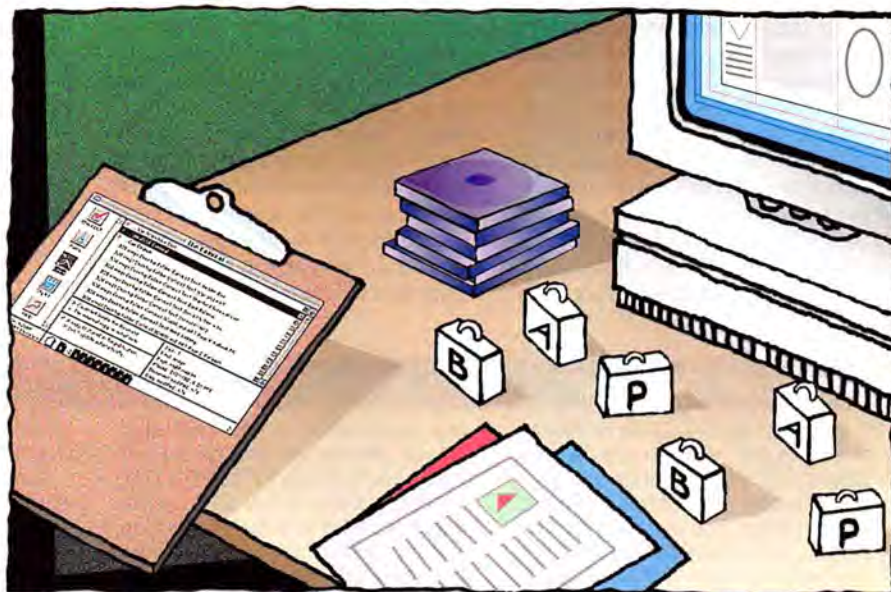


# Optimal Output

*A trip to the service bureau doesn't have to be an ordeal.*

*Follow these simple rules, and you'll get perfect output every time (well, almost).*

**By Jim Pennypacker,  
Deborah Weiss, and  
Aileen Abernathy**



If you're a typical desktop publisher, you use a 300-dpi laser printer for most of your output — those memos, forms, and newsletters that make up the bulk of publication work. You take your laser printer for granted: Create a publication; click on the Print button; and out pops the document, exactly as expected.

This scenario changes dramatically, however, if you send your files to a service bureau for high-resolution output on an imagesetter. The technician at the service bureau doesn't know what your document is supposed to look like, and if your files won't print or the resulting output is incorrect, you'll still have to pay for the pages. (Imagesetters are sophisticated PostScript output devices that print on paper or film at resolutions of 1,200 to 2,400 dpi or more. To learn more about imagesetters and choosing service bureaus, see "Beyond the Laser Printer," January '91, page 197.)

Service bureaus charge \$5 to \$10 per page for output to an imagesetter — and that's just if the page prints within the standard output time (around 15 minutes). If your pages take longer to print, the shop will charge you about \$25 per hour for the overtime. (Most service bureaus offer discounts for large volumes and frequent customers.)

At these prices, you don't want dumb mistakes to force you to print the same file over and over. In addition, basic service-bureau charges often don't include fixing problems with your files. The shop will be happy to help

you solve output problems, but you will have to pay extra for this service. Most output ordeals can be prevented with a little foresight and common sense, however, so here are some tips and techniques that will make your 1st — or 50th — trip to the service bureau as painless as possible.

## Make a List

This is the most important piece of advice for any service-bureau customer: Make a list, and check it twice, *before* you make the trek to the output shop. Hand this list to the technicians along with your files, so they know what you are giving them and what you expect to see on paper or film. (See the "Hunting and Gathering" sidebar for utilities that can help you make lists and gather files.)

•**List the names of the files you want printed and the page numbers to print from each file.** The first time we sent a floppy disk to a service bureau, we didn't specify which files and pages to output and wound up paying for a lot of pages we didn't want. Better still, if possible, send files that include only the pages you want printed.

•**Note the page size(s) you want.** This is particularly important if you need a page size other than 8.5 x 11 inches. If your publication is tabloid-sized, for example, you want to be sure the entire 11-x-17-inch page is printed.

•**Note any special print settings, such as scaling, paper orientation, and crop marks.** Don't assume that service-bureau technicians



can read your mind. If you've changed the scaling percentage in the Page Setup dialog box to something other than 100 percent, be sure to say so.

•**Write down the software you used to create the files, its version number, and the format(s) in which the files are saved.** Every service bureau should have applications such as Microsoft Word, PageMaker, QuarkXPress, Photoshop, Illustrator, and FreeHand. If you are using a different program, call ahead to be sure the shop can process the files or save your documents in a standard format such as PostScript, EPS, or TIFF, which can be opened by other applications. Also, write

down version numbers. If you're still using QuarkXPress 3.0 but your service bureau has version 3.1, you should both be alert for document-conversion snafus. Conversely, if you are using a newer software version than the service bureau is, it may not be able to output the files.

•**Make a complete list of the fonts used in the files.** Fonts are the No. 1 source of output problems at service bureaus. Whether you experience a mysterious replacement of Garamond by Courier or changed line endings in carefully designed columns of type, fonts can be a major headache when you send files to a service bureau. But the technician won't

know there's a problem unless you provide a list of the fonts you used, along with a printout that shows the intended appearance of the pages. Be sure to list all style variations — Minion Italic is a different font from Minion Regular.

Font substitutions usually occur when the ID numbers of fonts in your system don't match those at the service bureau. This is a problem only if your application tracks fonts internally by ID number; in such a case, ID number 1578 may be Palatino on your Mac and Brush Script at the service bureau. Current versions of most applications — PageMaker, QuarkXPress, and FreeHand, for example —

## Hunting and Gathering

Preparing files for a service bureau can be a hassle. First, you have to make complete lists of files, fonts, and other information the service bureau needs to produce accurate output. You can create the lists manually, but it's easy to forget a font that you used for a single dingbat on page 7. QuarkXPress provides Font Usage and Picture Usage dialog boxes, but you can't save or print these lists, so you have to hand-copy their contents (no easy feat with a pop-up menu).

Display Pub Info, an Addition that comes with PageMaker 4.2, is more helpful: It can save a text file that lists a document's fonts, styles, and linked elements. Much more useful is ElseWare's CheckList 1.0, which scans a PageMaker (any version) file and creates a report that details its constituent fonts, graphics, and style sheets. This \$45 shareware utility is available from user groups and on-line services such as ZiffNet/Mac. It also comes with PageMaker 4.2.

After making a list, you must gather all the necessary files, making sure not to forget anything. PageMaker 4.2 makes this job a little easier: If you select the Files for Remote Printing option in the Save As dialog box, the program will copy into a single folder all the files needed to print the publication, including linked graphics and special files such as the track-kerling resource file. Aldus, 411 First Avenue S., Seattle, WA 98104; (800) 367-1892 or (206) 622-5500.

But what you *really* need is a utility that automates your list making and rounds up the supplementary files. CheckList 2.02 to the rescue. This must-have utility greatly expands on the capabilities of its shareware cousin. The \$180 CheckList 2.02 works with PostScript and EPS files — including those created by FreeHand, Illustrator, QuarkXPress, or Microsoft Word — and includes printer settings in its reports. It

alerts you to problems with fonts and linked graphics, lets you add notes to files, and enables you to change a PageMaker file's print options. CheckList 2.02 can also gather all the files needed for output, copy them to a common folder or disk(s), and compress them into a self-extracting archive. ElseWare, 3201 Fremont Avenue N., Seattle, WA 98103; (206) 547-9623.

QuarkXPress 3.1 users have two other options. If you want something easy and economical, there's Save for Service Bureau (the name was tentative at press time). This free XTension combines the capabilities of PageMaker's Display Pub Info and Save As Files for Remote Printing features. SSB copies the QuarkXPress document and associated graphics into a single folder and produces an ASCII text file that lists all the fonts and graphics in the document.

It's available from user groups and on-line services or for \$25 from Quark.

QuarkPrint, an XTension aimed at service bureaus, is considerably more robust. It can print and save a list of all the fonts, graphics, style sheets, H&J (hyphenation and justification) specifications, and colors used in a document, even if that document isn't currently open. It also lets you save and apply printer settings, specify custom screen angles, and compensate for dot gain. But QuarkPrint's best feature may be its ability to print nonsequential pages and to print just a specified area of a page. QuarkPrint costs \$195, but Quark authorized service bureaus and registered QuarkXTas owners can get it for \$95. Quark, 300 S. Jackson, Denver, CO 80209; (800) 356-9363 or (303) 934-2211.

— Aileen Abernathy

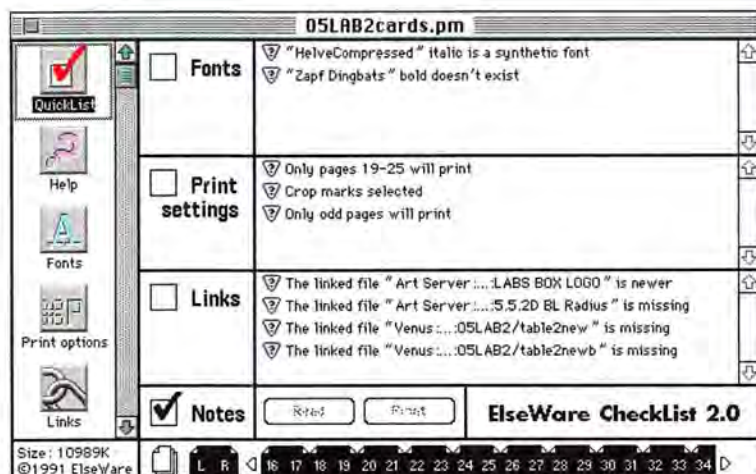


Figure A: CheckList 2.02 can prepare a list of vital statistics for PageMaker, PostScript, and EPS files and can alert you to potential output problems.



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## DESKTOP PUBLISHING PREPRESS

identify fonts by name, which eliminates the problem. One longtime holdout was Microsoft Word. With version 5.0, however, Word finally calls fonts by name. But if you use older versions of Word or other programs, you may run into problems. One workaround for Word is to save files in its Interchange Format (RTF), which does store font information by name.

Also note *whose* version of a font you're using, especially if it's a non-Adobe font. Some fonts are manufactured by more than one vendor—both Adobe and Bitstream market versions of Futura, for

example. The two fonts have slight variations in character width and letterspacing, which can affect line breaks and page composition.

Finally, if your fonts are in TrueType format, be sure to indicate this. Otherwise, your service bureau will assume that they are PostScript Type 1 fonts.

### Forget-Me-Nots

Few things are more frustrating than driving across town to the service bureau with a 20-megabyte file, only to find that you've forgotten Figure 17.

•Provide an accurate and complete

LaserCheck (C) 1990 Systems of Merritt, Inc. Version: 1.0 rev 0a  
Product: QMS-PS 410 Printer Name: QMS-PS 410  
Version: 52.4 Revision: 7  
Imagesetter Paper Size Requested: custom x,y Axis Scale: 0.46  
Width: 1008 Height: 1050 Margin: 0 Orientation: 1

## DESKTOP PUBLISHER

### CALL FOR ENTRIES

As a Desktop Publisher user, you are invited to enter a contest to win a free copy of the book "Desktop Publishing: The Complete Guide" by John W. Derry. The contest is open to all users of Desktop Publisher 1.0 or later. Entries should be sent to: Desktop Publishing Contest, 10000 Wilshire Blvd., Suite 1000, Beverly Hills, CA 90210. Deadline: December 31, 1990.

### IN BRIEF

**Apple ships ImageWriter Pro for 800 accounts**  
Apple has announced that it will be shipping the ImageWriter Pro laser printer to 800 accounts. The printer is a high-end, high-speed laser printer that can print at 600 dots per inch. It is available in both desktop and floor-standing models.

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### Windows Users Group Network

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### COLOR MARKET HEATS UP Canon offers laser copier with computer connectivity

Canon has announced that it will be shipping the Color Image Runner 400 laser copier. The copier is a high-end, high-speed laser copier that can print at 600 dots per inch. It is available in both desktop and floor-standing models. The copier is designed for use in offices and is capable of handling large volumes of work.

### New study measures print quality from color copiers

A new study has been conducted to measure the print quality of color copiers. The study found that the print quality of color copiers is generally good, but there are some areas for improvement. The study also found that the print quality of color copiers is generally better than that of black and white copiers.

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Figure 1: With LaserCheck, a clever utility that turns a PostScript laser printer into a proofing device for an imagesetter, you can catch and fix output problems before visiting the service bureau. LaserCheck shows you how the page will look and provides feedback on processing time, PostScript errors, and color-separation problems.



**•Don't forget customized hyphenation or kerning data.** If you've modified the hyphenation, tracking, or kerning information for text within a page-layout document, that data may be stored in a special resource or preferences file. For example, depending on the options you choose, QuarkXPress may store some of this information in the XPress Preferences file. If so, be sure to send that file along to the service bureau.

- **Include all color-separation files.** If you've already separated some or all of your color images, be sure to send the related files. Images separated with the DCS technique, for example, have four EPS files (one for each of the color plates) in addition to the PICT file that you place in the page layout.

One way to troubleshoot potential output problems is with LaserCheck, a \$149 utility from Systems of Merritt ([205] 660-1240) that turns your PostScript laser printer into a proofing device for an

| Blender                                    |      |                                        |     |
|--------------------------------------------|------|----------------------------------------|-----|
|                                            | From |                                        | To  |
| Cyan                                       | 10   | %                                      | 71  |
| Magenta                                    | 63   | %                                      | 43  |
| Yellow                                     | 37   | %                                      | 0   |
| Black                                      | 0    | %                                      | 0   |
| Tint                                       | 100  | %                                      | 100 |
| Screen Frequency:                          | 133  |                                        | lpi |
| Printer Resolution:                        | 2540 |                                        | dpi |
| Number of Possible Grays:                  |      |                                        | 256 |
| Total Steps for this Blend:                |      |                                        | 156 |
| Number of Intermediate Steps:              |      |                                        | 154 |
| <input type="checkbox"/> Suppress Warnings |      |                                        |     |
| <input type="button" value="Calculate"/>   |      | <input type="button" value="More..."/> |     |
|                                            |      | <input type="button" value="Help"/>    |     |

**Figure 2: Blender is a handy (and free) utility for calculating the minimum number of steps necessary for a smooth color blend. In this case, Blender reports that 156 steps are needed, rather than the maximum of 256; using fewer steps dramatically reduces output time on an imagesetter.**

**MacFriends History Lesson #17**

# RENAISSANCE MAC

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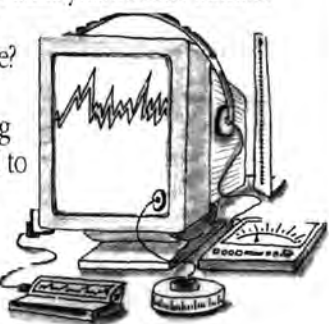
MacUser's annual MiniFinders issue contains product reviews systematically spanning the entire Macintosh universe.

If it's currently available, you'll find it among more than a thousand listings, each with mouse ratings that cut right to the bottom line. This issue's a keeper — an indispensable tool to help you make purchases all year long. **★★★★**



## LABS REPORT: AUTOSYNCHRONOUS MONITORS

What's an autosynchronous monitor and who needs one? Find out everything you need to know to make the right purchase decision.



The editors explain how the technology works, its ergonomics and safety features, and the usual battery of significant tests. Also: new products on the horizon. MacUser is synchronous with better buying for business.

**AUGUST AD CLOSE:  
Wednesday,  
May 27, 1992**

## DESKTOP PUBLISHING PREPRESS

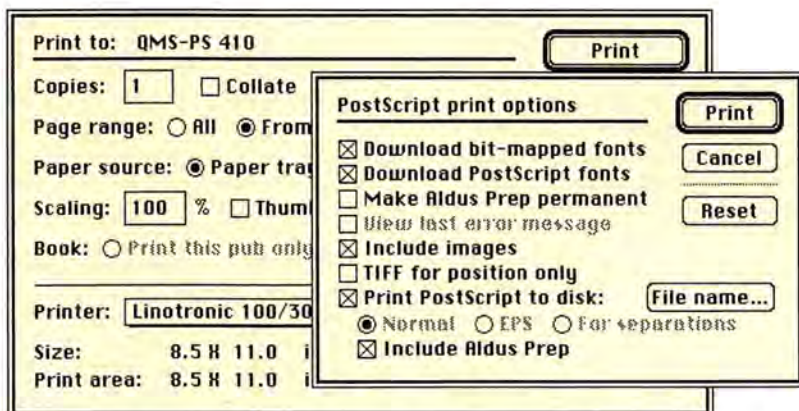


Figure 3: If you save your document as a PostScript file, the service bureau will be able to send it directly to the imagesetter without making any adjustments. Make sure all the settings are correct, including the printer designation. In PageMaker's PostScript Print Options dialog box, you can choose to have fonts downloaded automatically and to save linked graphics inside the PostScript file.

imagesetter. It uses the imagesetter's printer files and output settings and scales the pages to fit 8.5-x-11-inch paper. Laser-Check's output shows crop and registration marks; displays job information such as screen angles, fonts used, and processing time; and flags any PostScript errors and color-separation problems (see Figure 1).

•**Proofread your copy before you send it to the service bureau.** Paying another \$7 per page because you forgot an *s* in *embarrassment* is costly, aggravating to everyone involved, and embarrassing.

•**Don't use PICT files.** The PICT file format is not well supported by such page-layout programs as PageMaker and QuarkXPress or by color-separation utilities. Printing problems are common. Save bit-mapped images as TIFF files and object-oriented graphics as EPS files. (For more on graphics file formats, see "Graphics Glossary," April '92, page 165.)

•**Read the manuals.** Many headaches can be avoided with this simple step. It pays off: The documentation often covers output problems and their solutions.

•**Don't use Helvetica Narrow.** This font exists only on laser printers. Don't ask why, and don't use it.

•**Don't submit jobs created with unreleased software.** The software isn't shipping because it isn't finished. Don't become an unwilling beta tester.

### Keep It Simple

If fonts are the top source of output problems, then complex files run a close second. A large and/or complex file can

cause agonizingly long printing times and even "choke" an imagesetter, aborting the print job.

The most common culprits are graphics-related: blends and fills, masks, TIFF images, complex paths, and high-resolution line screens. When it comes to outputting files, smaller and simpler are always better.

•**Keep files small enough to maneuver.** Not only are huge files difficult to transport but they can also exceed the available memory of the imagesetter, prematurely terminating the print job. Divide large jobs into several smaller files; for example, each chapter of a book can be a separate file.

•**Eliminate unnecessary elements.** Delete any items that are on the pasteboard or are completely hidden by other objects. Instead of covering an unneeded element with a white box, delete it. The imagesetter processes everything in an image, even the parts that are hidden.

•**Keep TIFF images as small as possible.** Don't save gray-scale or monochrome images as color TIFF files. When you're scanning, keep in mind that the resolution for gray-scale and color images usually shouldn't be more than twice that of the output line screen. For example, if you're printing photographs at 85 lines per inch in a newspaper, scanning them at 300 dpi won't improve their looks but it will dramatically increase the file sizes and output times.

•**Don't overuse blends, fills, and patterns.** Be judicious in your use of these memory-intensive elements, and use only



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# It's The Bright Choice For Nit Pickers.





the minimum number of steps required to make the blend or fill look smooth. Otherwise, you face long output times and the risk that the imagesetter will run out of memory before it can output the page.

A PostScript blend can have as many

as 254 intermediate steps between the beginning and end colors. Fortunately, you don't always need 256 steps to create a smooth blend. You can use a handy (and free) utility called Blender to calculate the minimum number of steps that

are necessary for a smooth transition between two colors (see Figure 2). Blender is available from user groups and on-line services such as ZiffNet/Mac.

Also be sparing with fills made from patterned tiles such as those available in FreeHand and Illustrator. A background made from a repeating pattern may look great, but using one is among the easiest ways to choke an imagesetter.

•**Don't use masks as substitutes for careful design.** Masks (sometimes called clipping paths) are important design tools, but don't casually use them to cover up design flaws. Masks increase output times, for two reasons: They are complex, and the imagesetter processes the hidden image areas. (FreeHand 3.1 is an exception; it doesn't cause the imagesetter to process masked areas.) And don't mask already masked areas of an image unless your design absolutely demands it.

•**Be careful with auto-tracing and pen tools.** The imagesetter interprets every single point on a path. If the path has too many points, it will generate a PostScript **limitcheck** error and not print at all. Auto-tracing, in particular, can easily create paths with excessive numbers of points. One way to reduce the number of points on a path is to reduce the image's curviness. FreeHand, Illustrator, and Photoshop all let you adjust the sensitivity of their drawing tools.

#### Power Tools

Next, here are a few tips for you power publishers:

•**Use the correct settings for line screens.** A 65-line halftone screen might work well for laser-printer output, but it looks cheesy coming out of a high-resolution imagesetter. Talk to the people at your service bureau and print shop about the appropriate screen frequencies and angles, and adjust the settings before you output the job. A magazine, for example, typically uses a 133-line screen.

•**If you are using color, say so.** Laser-printer samples are usually black-and-white, so tell the service bureau if you use spot colors or expect separations of process colors.

•**If you want color separations, adjust the program's settings accordingly.** Make certain that you check the appropriate boxes for separations, crop marks, and registration marks. Color separations can frequently create special output problems, so you should talk to the service-bureau and printing-press personnel ahead

# LOVE NEVER DIES

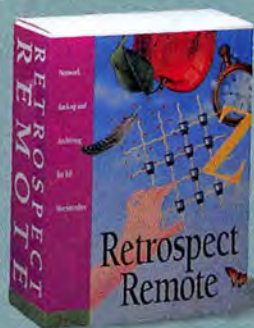
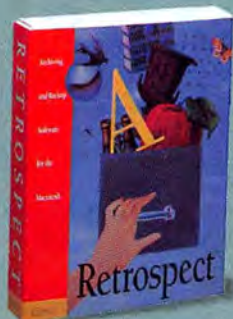
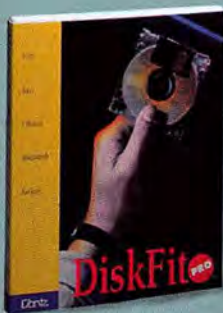
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of time, and follow their advice.

•**Don't use trapping unless you know what you're doing.** Trapping — the overlapping of adjacent colors to compensate for misregistration on the printing press — is a complex skill, and desktop trapping is done differently (or not at all) from program to program. Improperly specified traps can create more havoc than untrapped images can, so always talk to the people at your printshop beforehand. Most printshops prefer to handle trapping themselves and don't charge extra for it. If your printer does want you to apply trapping, find out how much is needed and how it should be done for the particular press.


•**If you're producing camera-ready output for a press run, use the appropriate print settings.** For film output, ask your printer whether you should provide a positive or a negative image and which emulsion direction to use. If your program offers these features, find out what to select for knockouts, paper stock, dot gain, and halftone screen angles. (For tips on choosing the right service bureau for film output, see "Getting It on Film," May '90, page 351.)

•**Save the file in PostScript format.** If your document is set up exactly right, with all the correct settings, convert it to a PostScript file (see Figure 3). If the file is in the format of the original application, the technician must open the file, adjust the printing options for the imagesetter, relink the graphics, and print it from within the program. A file in PostScript format, however, can be sent directly to the imagesetter. When saving a PostScript file to disk, remember to change the printer selection to the imagesetter used by your service bureau. Also note that if anything goes wrong, you'll have to make changes in the original file, as the PostScript file is not easily editable.

#### Final Words of Advice

•**Never be afraid to ask questions.** Service bureaus much prefer clients' calling ahead with questions to dealing with output disasters on-site. No question is too dumb if it provides needed information and saves you — and the service bureau — time and money.

•**Haste makes waste.** Was your job really needed yesterday? If you rush through a job, you're more likely to make mistakes that will eat up the time (and money) you're trying to save. If you want to establish a healthy long-term

relationship with your service bureau, don't demand that it rush a job and then come back repeatedly with changes. Treat the folks at your service bureau with professional courtesy, and they'll go out of their way to help you. 

Jim Pennypacker and Deborah Weiss publish the *Desktop Publisher*, a monthly newspaper for mid-Atlantic desktop publishers, and put on the MacShow, a regional Mac business exposition. Senior editor Aileen Abernathy is *MacUser's* resident expert on desktop publishing.

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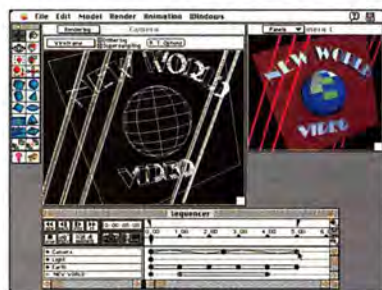


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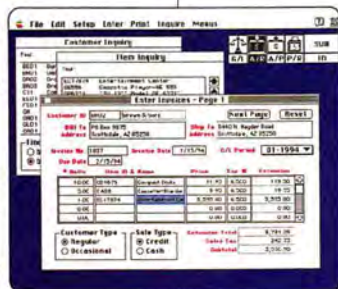
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Picture this: Colby Systems, which has been making Macs portable longer than Apple has, now makes a video phone that sends still-image video over standard dial-up telephone lines. The ColbyVision System (\$1,499) contains a 9-inch 242-x-200-pixel gray-scale monitor and video camera, plus a VideoModem for data compression and transmission. It can also transmit images sent from a Mac and save images to a Mac equipped with a video-digitizing board. (415) 941-9090.

By Henry Bortman

**Look Ma, no wires:** If you simply *must* be able to receive messages from wherever you are — phone or no phone — check out the Ericsson GE Mobidem. A mere \$1,795 buys you this wireless Hayes-compatible modem. It weighs less than a pound, can be used anywhere in the U.S. or Canada that the Mobitex network is available, and has a transmission rate of around 8 kbps. Just one catch: At press time, it didn't work with the Mac. But by the time you read this, support for a custom gateway to MCI Mail, the Internet, and other messaging systems — plus some pagers — should be available. Look for access to local-area AppleTalk networks further down the road. (201) 265-6600.

**Smart management:** Most network-management software makes you do the bulk of the work: It collects data only when you ask it to, and if anything is wrong, you have to figure out what the problem is. Dayna has taken the opposite approach with its Network Vital Signs (\$449). This software watches for the network fault conditions you specify — such as a printer going off-line, poor file-server response, or router problems — and reports on them when they occur. A "report" can be a dialog box on your Mac, an entry in an event log, or even a call to a pager number. And if you want to get reports on traffic and error conditions on remote network segments, just place a Dayna NetScope Probe on each subnetwork; the Probe reports back to a NetScope console, which passes information on to Network Vital Signs. A Probe and Console bundle retails for \$899. ♣ The AG Group ([510] 937-7900) is also on the alert: Its **Net Watchman** software now supports direct calls to a pager when a fault condition occurs. Net Watchman 1.2 retails for \$295.



**Move over, 007:** If you're looking to monitor your AppleTalk network from a Sun SPARCstation, you might want to check out Apple AgentMan (\$595), from IPT ([805] 541-3000). It works as an extension to SunConnect's SunNet Manager network-management software.

**Phoning home:** Shiva is shipping the first of what promises to be a host of ARA (AppleTalk Remote Access) servers. Like Shiva's NetSerial product, the LanRover/L (\$699) connects a modem to a LocalTalk network. The LanRover/L, however, implements ARA protocols, so you can make a Remote Access connection to a network without having to dial in to another Mac. This model supports dial-back capability as a security feature but enables only a single dial-in connection. Ⓜ



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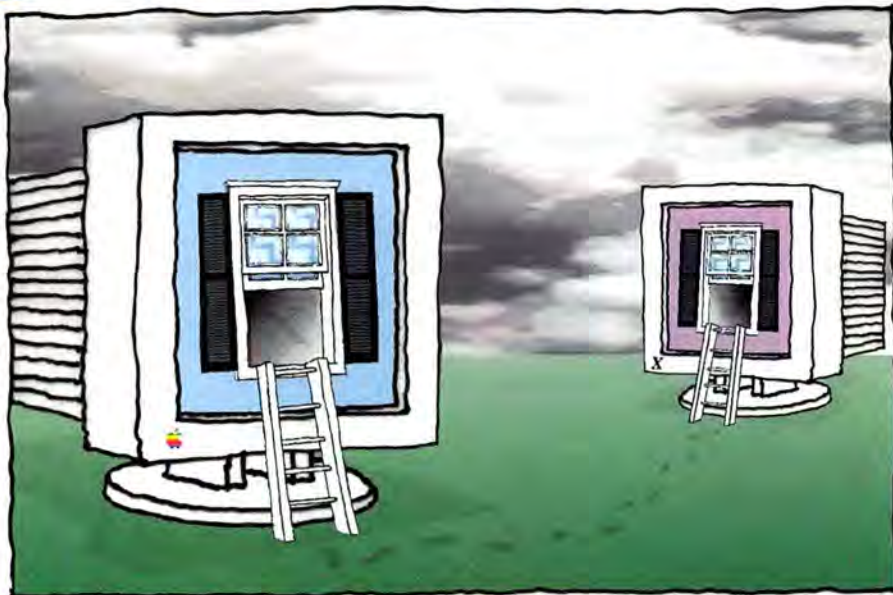
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# Opening the X Window

*If you keep jumping between the X workstations and the Macs on your network, Macintosh X-client or X-server software can give you windows into both worlds from one machine.*

By Ian Bacon



**T**he number of people with one foot in the Mac world and the other foot in the X Window world gets bigger every day. In the X Window world, users of UNIX workstations and VAX minicomputers use the X Window System (also referred to as X Window, or just plain X) as a common graphical environment and a way to run applications remotely over a network (see the "Origins of X" sidebar). As Macs become more common elements of such networks, there is a growing need for products that make Macintosh as well as X Window capabilities available to all network users.

Why would users on a network with fast, powerful workstations with graphical X interfaces want Mac capabilities? Two common reasons are cost and a lack of software options (or more precisely, a lack of affordable software options). In general, Macs are much less expensive than workstations and offer a wider range of basic office productivity software at affordable prices. (UNIX spreadsheet packages, such as eXclaim, from Quality Software Products, can cost a couple thousand dollars.) At the Goddard Space Flight Center, where we performed the testing for this article, users tend to have Macs on their desktop; UNIX workstations are often clustered in central areas where people can share them for scientific-data collection and reduction.

In setups such as the one at Goddard, products that let a user run Mac and X Window applications from the same location in the

same session offer many benefits. In addition to saving wear and tear on shoes (from fewer down-the-hall and building-to-building trips), they can provide a way to cut and paste data between X and Mac applications for creating reports and other documents.

Using X's cross-network capabilities, several vendors have come up with Macintosh X servers, which let Macs run applications on remotely connected X workstations or minicomputers, and Macintosh X clients, which let X machines run applications on remotely connected Macs. In both cases, the applications from the remote computer run in windows on the local computer.

## The Wacky, Backward X World

In the world of X, the terms *client* and *server* don't mean what you might expect, and if you're used to Apple network terminology, the X client and server concepts won't be immediately intuitive to you. In Apple networks, a server is generally a shared device that delivers some kind of service (such as access to a printer or to files and applications) to network users, or clients. In the X Window world, the clients are hardware-independent applications that you access either locally (on the same machine) or remotely (on another node of a network that uses the TCP/IP protocol). X servers are programs specific to particular workstations or terminals that know how to control and draw the display when they're sent commands from clients. A server's



role is a fairly passive one: It listens for commands from clients and for input from users (such as key presses and mouse clicks), which it passes to clients.

In addition to the client application and the server, the X Window System has a window manager, which intervenes

between the client and the server to tell the server how to put information from the client into a scrollable, movable, resizable window. It also includes a desktop manager, which tells the window manager how to put such a window on to an icon-based, desktop-metaphor user

interface (see Figure 1). This hardware-independent architecture is very different from the Macintosh GUI (graphical user interface), in which the window management and graphics routines are part of the operating system. In X, the desktop manager is generally commercial software, such as X.desktop, from IXI, or HP-Vue, from Hewlett-Packard/SAIC. The window manager is either commercial software, such as Motif, from the Open Software Foundation; OPEN LOOK, from a consortium that includes AT&T and Sun Microsystems; or public-domain software, such as Tom's Window Manager. Because it's device-specific, the X server is usually included with the computer when you buy it — Macintosh X servers are an exception, because X Window is not the usual GUI for Macs.

#### X Applications on the Mac

Two X-server packages are currently available: Apple's MacX and White Pines Software's eXodus. These packages provide two of the elements shown in Figure 1: an X server and a window manager. After you've installed an X server on your Mac, the server can interact with X-client applications across a network while the window manager makes the X applications show up in windows on your Mac. Both of these packages can run under A/UX (Apple's version of UNIX for the Mac) or under the Mac operating system. We tested them under the Mac operating system, because not all users will want to buy A/UX just to run MacX or eXodus.

To run X applications remotely on a UNIX workstation from a Mac, the Mac must be connected to an Ethernet network and support the TCP/IP communications protocol. The MacX and eXodus packages each include the MacTCP driver. MacX also requires and includes MacTCP Tools, which you install in your System Folder in either the Communications folder or the Extensions folder, depending on whether you're running System 6 or System 7. In addition to the MacTCP driver, eXodus includes drivers for the DECnet protocol and the ADSP (Apple Data Stream Protocol), so that your Mac can run X applications on any remotely connected VAX.

**Getting Started.** Installing either MacX or eXodus is straightforward and takes about five minutes: You create a folder, drag files into it from the distribution disks, and then reboot your Mac. Much of what you drag into the folder is fonts

Figure 1: How X Window Works

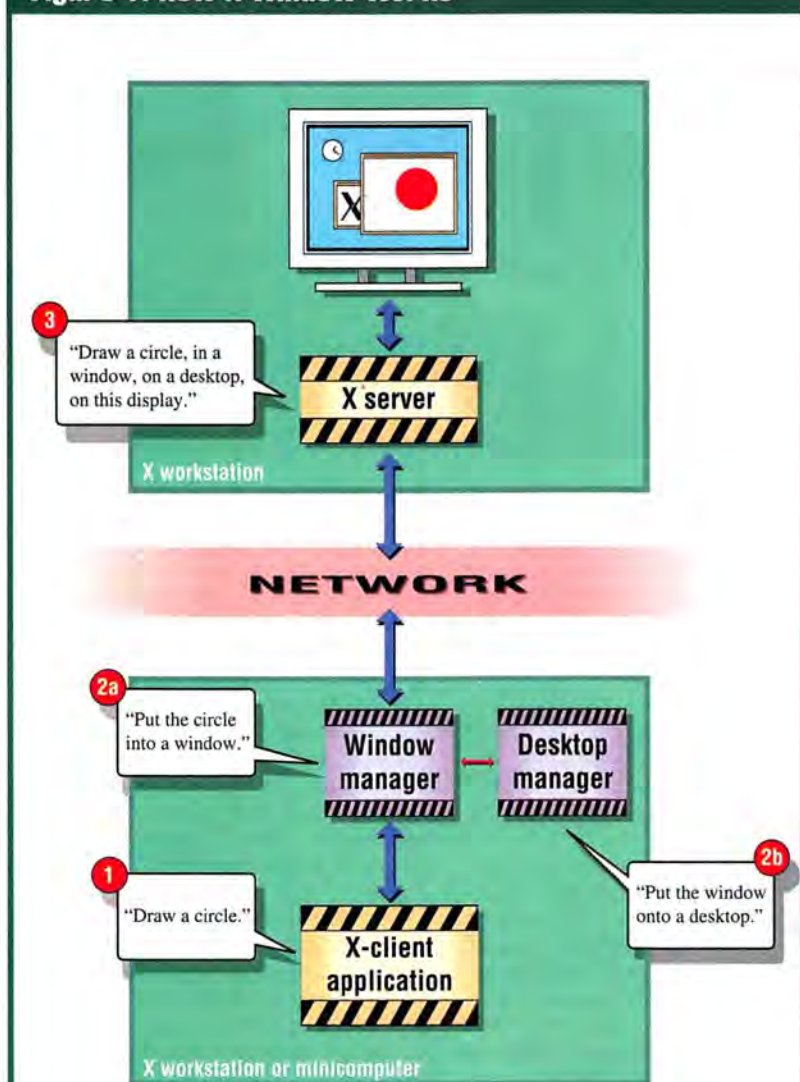


Figure 1: X Window uses many processes to produce a hardware-independent graphical user interface that lets you run client applications across a network. (In X, the terms *client* and *server* are backward from Mac terminology — here, the server is a program on your *local* workstation or terminal whereas the clients can be on the same machine or anywhere on the network). The client applications (including the desktop manager, which produces the icon-based interface) send commands to the window manager, which decodes them, puts them into windows, and sends them on to the hardware-specific X server. The server executes commands to draw graphics and text and sends back input events such as key presses or mouse clicks.



(three disks full, in fact), because X has its own standard for fonts and can't use the ones in your Mac system. X fonts are defined by BDF (bit-map distribution format) files. These are ASCII text files that can be ported easily among computers (the server on each computer uses binary versions of these files). White Pines provides a font compiler for eXodus that converts fonts from BDF to the binary Server Natural Format. MacX simply supplies fonts in binary form.

The documentation for each package is thorough and includes a technical description of X. There are step-by-step installation instructions, including how to use the MacTCP control panel to set an internet address for the Mac, and the menu options are explained in detail.

MacX and eXodus take up around 735K of disk space apiece. MacX needs 1,500K of memory to run, whereas eXodus requires 2,048K.

**Similar Approaches.** MacX and eXodus work in similar ways, but then there are only so many ways that an X server can work. The window manager of each package supports rootless windows (which can be placed anywhere on the desktop) as well as rooted windows (in which all subsequent windows running X processes are opened within the first, or "root," window). These managers make the windows for the X applications look like Mac windows, as Figure 2 shows, and they perform the same functions as a manager on a native X system: resizing the windows, moving them, and shrinking them into icons as needed. A menu entry on the Mac menu bar for each product lets you convert text or bit-mapped graphics between the X and Mac Clipboard formats.

The MacX window manager is named the MacX Window Manager, and the eXodus window manager is eXene, presumably in honor of Exene Cervenka, of the L.A. punk band X. Apart from the names, they differ little from each other, and both operate smoothly. The MacX Window Manager lets you change a window's properties on the fly (a plain window can become a growable one, for instance), but this seems more a frill than a highly necessary feature. White Pines reports that the next version of eXene optionally draws rootless windows with Motif properties, but Motif's resemblance to Microsoft Windows may give Mac purists fits.

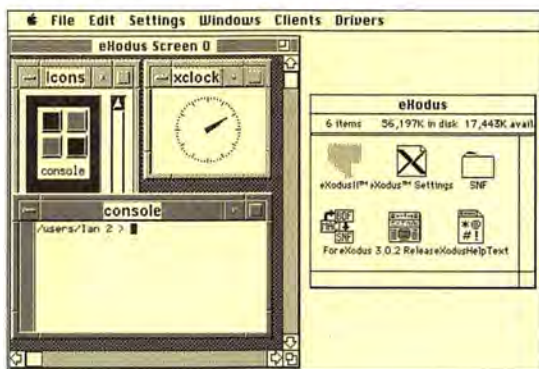
The process of connecting to the client

## Origins of X

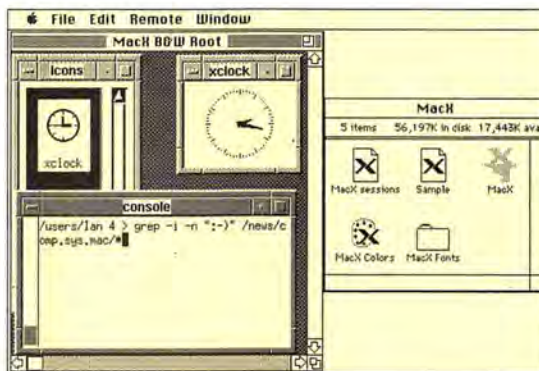
The Massachusetts Institute of Technology started developing the X Window System in 1984. At that time, MIT owned a variety of incompatible workstations and minicomputers, obtained through a series of donations and purchases. The goal was to find a way of making these various machines compatible so that their resources could be shared across a network. In order to achieve this objective, MIT decided to collaborate with DEC and IBM. Their joint

effort was called Project Athena.

Using a Stanford University windowing system called W as a base, Project Athena produced a network-based graphical environment that was hardware- and vendor-independent. By 1986, the outside world was clamoring for the code. In response, MIT released X version 10.4. Version 11 came out in 1988, and the latest release, version 11.5 (usually referred to as X11R5), was released in December 1991.



**Figure 2: Is it real or is it Memorex? Because X was written to be vendor-independent, X displays look the same on any system that implements an X server, using the standard X algorithms. MacX and eXodus X displays on a Mac look identical — the only real difference is in the placement of items in the menu bar.**



X application on a remote system is slightly easier with eXodus than it is with MacX. With each product, you edit a client script in a dialog box to specify the internet address of the machine on which the client is to run. With MacX, however, you also need to specify the internet address of your machine and your display (eXodus knows these addresses automatically). This information is stored after you've entered it, so you don't need to enter it again when you want to connect to the same client.

**The Speed Test.** To test the efficiency of each server package, we ran a standard X Window benchmark program that exercises all the integral X graphics algorithms in turn and then produces a statistical benchmark measured in Xstones, which represent the number of graphic operations per second. For comparison, we also ran these tests on a Sun SPARCstation 2, which has its own server software, and on the A/UX native X server on a Mac IIfx. MacX, benchmarked at 8,285 Xstones, turned out to be faster overall



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## BRIDGES PLATFORMS

**Table 1: Pros and Cons of Macintosh X Servers and X Clients**

|                     |  Pros                                                                                                                          |  Cons                                                                                          |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Macintosh X Servers | <b>eXodus 3.0.2</b> <ul style="list-style-type: none"> <li>• Well-laid-out menus.</li> <li>• Easy editing of client scripts.</li> <li>• Comprehensive documentation.</li> </ul>                                 | <ul style="list-style-type: none"> <li>• A memory hog.</li> </ul>                                                                                                                 |
|                     | <b>MacX 1.1.7</b> <ul style="list-style-type: none"> <li>• A solid implementation of X11R4.</li> <li>• Fastest algorithms.</li> </ul>                                                                           | <ul style="list-style-type: none"> <li>• Configuration functions hidden in hierarchical menus.</li> </ul>                                                                         |
| Macintosh X Clients | <b>Planet X 1.0.0</b> <ul style="list-style-type: none"> <li>• Provides Timbuktu-like capabilities for Mac users accessing Macs from remote X systems.</li> <li>• Works with color.</li> </ul>                  | <ul style="list-style-type: none"> <li>• Slows down Mac graphics.</li> <li>• Graphics-intensive programs can bog down a network.</li> </ul>                                       |
|                     | <b>XGator 1.1</b> <ul style="list-style-type: none"> <li>• Provides Timbuktu-like capabilities for Mac users accessing Macs from remote X systems.</li> <li>• About 30 percent faster than Planet X.</li> </ul> | <ul style="list-style-type: none"> <li>• Slows down Mac graphics.</li> <li>• Graphics-intensive programs can bog down a network.</li> <li>• Doesn't yet support color.</li> </ul> |

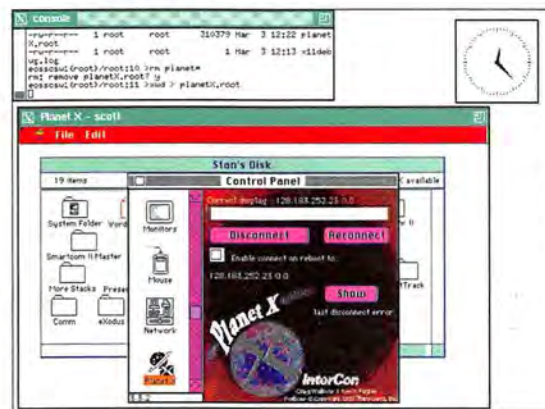
than eXodus, which benchmarked at 6,889 Xstones (the biggest part of the difference occurred in pattern-fill operations). However, both packages are significantly slower than the native X environment under A/UX (13,796 Xstones), in which X-server algorithms replace the Mac QuickDraw graphics routines. And of course, all the Mac IIci results are slower than the SPARCstation results (19,374 Xstones).

### Mac Apps on X Machines

In addition to server packages, we tested two X clients for the Mac. These packages allow your Mac to become the client application that sends information to an

X server across a network. Essentially, they send a bit map of a Mac screen over the network to be displayed on an X workstation, giving X networks the same type of capability that Timbuktu and Carbon Copy provide for AppleTalk LANs. You can see the Macintosh screen in your X window (see Figure 3) and work in an application as if you were at the Mac (albeit more slowly) — a capability particularly useful if you're a network system administrator.

**Different Approaches.** The two packages we tested, InterCon Systems' Planet X and Cayman Systems' XGator, take different approaches to the task of creating a Macintosh X client. Planet X is



**Figure 3: Getting a Mac display on a Sun workstation is a showstopper until you see how slow and jerky the display is — but then, sending bit maps over a network is generally slow. Planet X sends color bit maps, but XGator currently handles only black-and-white.**



# COMPARE



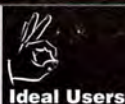
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- Mac users on Mac/UNIX/VAX networks who want to run X programs remotely from their Mac.
- Network administrators.
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- Network administrators.
- Mac users on Mac/UNIX/VAX networks who have to work away from their Mac.

implemented as a control panel and an extension; XGator comes as an extension and as an application. The extensions must be installed at the top level of the System Folder (rather than in the Extensions folder) in order to load after MacTCP makes the TCP/IP network connection,

because they need to register on the network when they load. (Items in the Extensions folder load before control-panel items such as MacTCP.) Each of these packages is a lot smaller than the Macintosh X servers, because their graphics functions are more limited (they send bit maps of how the screen looks instead of sending commands to draw an image on the screen).

Planet X can initiate a connection to an X workstation from the Mac, if the workstation display already has an X server running, or the X machine can do the initiating (using telnet, a standard UNIX communications protocol). XGator operates a little differently. The extension listens to the network for a telnet connection request, which can be issued only from the X machine — the XGator application must already be running on the Mac for a connection to be possible.

Both systems let you use a DA to cut and paste text and bit maps between the X display and the Mac display in the X window. The major difference between the two is that Planet X supports 8-bit color whereas XGator currently requires the Mac to be set to black-and-white mode. (Version 2.0 of XGator, expected in the third quarter of 1992, will support 8-bit color.)

*Scant Documentation.* Unlike the two X-server packages, which come with

**Table 2: Macintosh X Servers**

|            | eXodus 3.0.2                                                                         | MacX 1.1.7                                                                                      |
|------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| List price | \$295                                                                                | \$203 (free with A/UX)                                                                          |
| Company    | White Pines Software<br>40 Simon St., Ste. 201<br>Nashua, NH 03060<br>(603) 886-9050 | Apple Computer<br>20525 Mariani Ave.<br>Cupertino, CA 95014<br>(800) 776-2333<br>(408) 996-1010 |

**Table 3: Macintosh X Clients**

|            | Planet X 1.0.0                                                                     | XGator 1.1                                                                                           |
|------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| List price | \$295                                                                              | \$295                                                                                                |
| Company    | InterCon Systems Corp.<br>950 Herndon Pkwy.<br>Herndon, VA 22070<br>(703) 709-9890 | Cayman Systems, Inc.<br>26 Landsdowne St.<br>Cambridge, MA 02139<br>(800) 473-4776<br>(617) 494-1999 |



oodles of user documentation, Planet X and XGator each come with just a pamphlet. InterCon seems to have spent a lot more on the Planet X magazine ad (a comic-book-style "Star Trek" takeoff) than on proofreading and typesetting the


documentation. The Planet X manual is garbled at times and leaves out some important information — for example, it doesn't tell you that you need to be running a session on your UNIX workstation before you try to connect from the control

panel on the Mac. XGator's documentation is better but too terse, providing one- or two-line instructions where more-detailed explanations would be much more helpful.

**Working in Slow Motion.** Despite running over an Ethernet LAN, Planet X and XGator each suffer from very slow Mac display on the X end, and mouse movement and animation (when you're opening a folder or application, for instance) are jumpy. Although Planet X sends color bit maps, as opposed to XGator's black-and-white ones, the amount of slowdown relative to the Mac appears to be comparable for both products. The graphics-intensive Xstones benchmark test proved to be too much for each package — neither could handle the rate at which graphics needed to be updated. Running MacDraw in an X window was painfully slow (an expanding or contracting circle showed up as arcs moving individually), and a large Excel spreadsheet took roughly twice as long to update as it would have directly on the Mac (a Ilci, in this case). Overall, using either package proved to be frustrating.

#### The Bottom Line

If you're a network administrator or someone who needs to set up dual editing sessions in which one partner is on a Mac and the other on an X terminal, you'll find that either Macintosh X client, Planet X or XGator, can provide a useful way to operate a Mac remotely from an X workstation. Planet X has the jump on XGator for color support, and XGator has a slight edge in documentation. Because the bit-map-sending process is so slow, however, these products aren't really suitable for those who frequently need to run Mac applications remotely.

If you want to be able to use Mac applications as well as work on an X system, using a Macintosh X server (either MacX or eXodus) to run X applications remotely from a Mac makes more sense. Because X is standardized, there's little to recommend one product over the other. MacX is slightly faster than eXodus, but eXodus provides an easier process for connecting to client applications. As a means of gaining access to the increasingly large world of X Window, each is an excellent value. 

Ian Bacon works for Telos Systems Group at NASA's Goddard Space Flight Center. He lives in Virginia with his wife, three sons, and two large dogs.



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Red-only memory: We knew that the Commonwealth of Independent States (formerly the Soviet Union) had plenty of outdated inventory on hand (mostly heroic bronzes), but we were still surprised to see Quanta Press' KGB World Factbook on CD-ROM. Intended as a complement to the earlier CIA World Factbook, the \$99 package offers a (nonclassified) snapshot of the Soviet worldview just before the dissolution of the USSR. (612) 379-3956.

By James Bradbury

**At the movies:** Looking for ways to pass the QuickTime while you wait for the multimedia revolution to start? Berkeley Systems' Movies 'Til Dawn is an After Dark module that plays QuickTime movies instead of images of fish and flying toasters. It's available for downloading from on-line services. ♦ MacCocktail, from IntuSoftware ([310] 798-6566), is bar-review software for anyone who doesn't know the difference between a **pink lady** and a **Rob Roy**. QuickTime movies illustrate finer points such as how to cut garnishes and pour. The \$49.95 program is probably the only software package for the Mac that comes with a free shot glass. ♦ Finally, if you're ready for QuickTime but haven't quite gotten around to investing in that Handycam, check out ClipTime, a \$199 CD-ROM from ALPHA Technologies Group that contains hundreds of movie clips ([410] 781-4200) or BMUG's \$50 TV-ROM, which contains public-domain QuickTime clips of people, places, animals, and things ([510] 549-2684). Some of the movies from the BMUG disc can also be downloaded from ZiffNet/Mac.



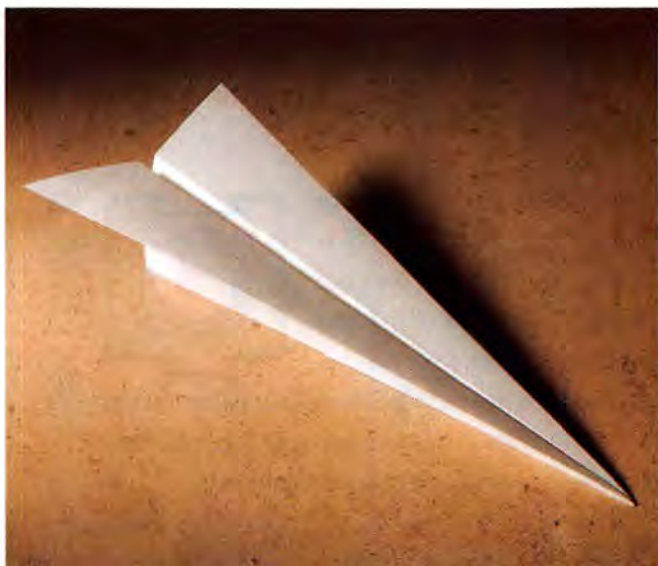
**Cool card tricks:** For those who'd like to do something more interesting with HyperCard than fill in the name-and-address stack that came with their bundled copy, a couple of book-with-disk packages are worth looking at. *Cool Mac Stacks*, by David Drucker (Carmel, Indiana: Hayden, \$19.95), is a general introduction to

stack making that includes 19 examples that range from the practical to the whimsical. If you're interested in really getting **hands-on with HyperTalk** (HyperCard's scripting language), search out *Cooking with HyperTalk*, by Dan Winkler and Scott Kanaster (New York: Bantam, \$39.95). Ignore the nerdy cover; Dan wrote HyperTalk, and again, an abundance of excellent examples is included.

**Kid stuff:** Because Brøderbund's junior painting program, KidPix, is the Teenage Mutant Ninja software of our times, it should come as no surprise that other companies are ready to tap the same market. KidMaps, a \$29 set of KidPix-compatible colorful maps, from MicroMaps Software ([609] 397-1611), ought to appeal to KidPixers as well as geography-crazy Carmen Sandiegans. Factor in the number of kids who can use state and world maps for school reports, and you've got a winner. ♦ Also set to appeal to the KidPix crowd is the Kidz Mouse, from Logitech ([510] 795-8500). It's designed for small hands, **packaged like a Barbie accessory**, and as cute as its buttons. Better hope that it doesn't get advertised on Saturday mornings. \$79. ☞







# Now there are two ways to make an 11"x17" sheet of paper fly.

The new LZR 1560 from Dataproducts is a complete departure from ordinary laser printers. At 15 ppm it's not only faster than most laser printers, it can also deliver output up to 11"x 17". Which means it can print spreadsheets, illustrations—any two-page layout—in the time it normally takes to process a letter-size page.

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language that delivers PostScript's vast graphic capabilities faster than ever before.

Plus, while most laser printers

300 dpi can be done with a click of the mouse.

Imagine creating two-page desktop publishing layouts without cutting and pasting.

Or finally getting your full production timeline on a single page that has *legible* 6-point type.

You'll still

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| 11" x 17" Laser Printer Market Snapshot |                           |                       |                           |                                            |                |
|-----------------------------------------|---------------------------|-----------------------|---------------------------|--------------------------------------------|----------------|
| SPECIFICATIONS                          |                           |                       |                           |                                            |                |
| Manufacturer/Model                      | Resolution (DPI)          | Speed (PPM)/Processor | Page Description Language | List Price                                 |                |
| <b>Dataproducts LZR 1560</b>            | <b>300x300 OR 400x400</b> | <b>15</b>             | <b>Weitek 8200 RISC</b>   | <b>Adobe PostScript Level 2 &amp; PCL4</b> | <b>\$5,695</b> |
| QMS PS2210                              | 300x300                   | 20                    | Motorola 68020            | Adobe PostScript                           | \$9,995        |
| LaserMaster 400XL                       | 400x400                   | 20                    | None                      | Microsoft TrueImage                        | \$9,995        |
| Varityper VT600W                        | 600x600                   | 7                     | Motorola 68020            | Adobe PostScript                           | \$16,995       |
| DEC PrintServer 20                      | 300x300                   | 20                    | N/A                       | Adobe PostScript                           | \$25,247       |
| ATI LC6020                              | 300x300                   | 20                    | Motorola 68020            | ATI LaserDrive & PostScript                | \$15,995       |



** Dataproducts.**  
The high performance printer people.™

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**CIRCLE 80 ON READER SERVICE CARD.**

**Price breakthrough!**

- 400 DPI
- Adobe PostScript Level 2
- 11" x 17" format
- \$5695!!



# Collective Bargains

*Seven sets of utilities or applications for the price of one? Here's how to stretch your software dollar without sacrificing power or features.*

**By Steven Bobker**



**A**s a consumer, you always have a choice: You can buy software programs that perform one specific task, such as an address-book manager, or you can buy packages that provide several functions. The best example of this latter type of package is an integrated software program. These days they all end in *Works*, and you can read about their specific strengths and weaknesses in "Swiss-Army Software," in this issue's Buyer's Guide.

In the past, I've expressed lukewarm feelings about the integrated programs I've seen. Many of you have written to express your thoughts about that and, in some cases, your incredulous displeasure. I was a bit surprised by the outpouring of support for these programs. They do make sense for a variety of reasons, not the least of which is reduced upgrade costs, as pointed out by Janet Gallagher in the February '92 Personal Best (page 256). In addition, it's fair to point out that the developers of both Microsoft Works and Symantec's GreatWorks have done a lot to improve the offerings in the new versions of their packages.

The most important thing I can add is that just because you buy an integrated package doesn't mean that you should feel obligated to use all of its modules — especially if you would like more depth in one or two areas. For example, the telecommunications module of every integrated package I've ever used has been serviceable but weak. If you do more

than minimal telecommunication, you'd do well to invest in a stand-alone telecommunications program. I use Smartcom II 3.3 for the bulk of my telecommunications. It's from Hayes Microcomputer ([404] 840-9200) and lists for \$149. Other fine products include White Knight (\$149 from FreeSoft; [412] 846-2700) and the shareware Zterm (available as ZTERM.CPT in ZiffNet/Mac's Download & Support Forum in Library 1).

## Utility Players

Another example of multipurpose software is utility collections. These have a long and venerable history in the Mac community (the oldest utility collection is even older than the oldest Works program) and are often great bargains. Given a limited software budget (and whose isn't?), which one should you opt for? Is one enough? Or would you get more benefit by getting two or more?

The most productive way to take advantage of a utility collection is to use the programs within the collection selectively. Because the price you pay for a collection is close to what you'd spend on better single-function packages, you don't need to feel compelled to use every single program simply because you've bought the set.

To help decide what's hot and what's not, let's peruse the collections currently available. One of the oldest is SUM II (Symantec Utilities for Macintosh). It's published by Symantec ([800] 441-7234 or [408] 253-9600)



**PERSONAL MACINTOSH**  
**PERSONAL BEST**

and lists for \$149.95. At some point, this old warrior is expected to be merged into Norton Utilities for the Macintosh, which is published by Symantec's Peter Norton division (see below). SUM II's strength is recovery of data on damaged or accidentally formatted disks. Although not as quick or as powerful as Norton Utilities, it's capable of recovering data in some situations that stymie Norton. It's not worth investing in today, but if you already have a copy, it certainly pays to keep it up-to-date.

Predating the original SUM is Central Point Software's MacTools Deluxe (\$129; [800] 888-8199 or [503] 690-8090). The star in this package is MacTools, a good disk editor and recovery tool that's marred by a difficult interface. The other elements of this set are ordinary workers, not stars. Each works as advertised, but none is the best of its type. The current version of MacTools, 1.2, is System 7-compatible, and if you need to do byte-level file hacking, this is the way to go.

Among the disk- and file-recovery

**Just because you  
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especially if you  
would like more  
depth in one or two  
areas.**

packages, Norton Utilities for the Macintosh is the best and the best known (\$129.95; [800] 441-7234 or [213] 319-2000). Norton Disk Doctor is an excellent tool for diagnosing and repairing damaged disks when disaster strikes. It's not failure-proof, but it's easy to use and has the best record overall. Having a copy of

the Norton Emergency Disk for your Mac is a good idea. (One stays next to my desktop Mac, and another is in my PowerBook's travel bag at all times.) Speed Disk, Norton's disk optimizer, is good but not nearly as good as Disk-Express II, which is included in ALSoft's Power Utilities. Unerase and the other programs in Norton are good, solid tools and are among the best of their type. One exception: Disk Light, which places a small flashing icon in your menu bar to tell you when the hard drive is active, can sometimes cause compatibility problems. There is a better solution for indicating drive activity: ALSoft's DiskFlash program, which is also included in the Power Utilities package.

**Productivity, Please**

Moving away from repair-and-recovery-oriented packages, we come to the productivity sets. The clear leader here is Now Software's Now Utilities (\$129; [800] 237-3611 or [503] 274-2800). It's hard to pick out just one or two stars from



Rub lamp and say:

"I want vivid color from an affordable printer."

"I want vivid color from an affordable printer."

"I want vivid color from an affordable printer."

If that doesn't work call 1-800-835-6100, Dept. 22A.

The Phaser™ II PXe color printer produces 16.7 million of the world's brightest, most vivid colors. It prints at 300 dpi onto transparencies or paper using PostScript Language-Level 2. It works with PC or Mac applications, it's fast, it's networkable and at \$4995, unexpectedly affordable. Rub for awhile, then call.

CIRCLE 40 ON READER SERVICE CARD.

**Tektronix**



among the programs included in this set. Super Boomerang is the best file and document finder and launcher available. StartUp Manager rates as the class act of extension managers. NowMenus and WYSIWYG Menus hold their own with other menu-enhancing utilities. Alarms-Clock is a top-of-the-heap menu-bar clock. If you want lots of value for your utilities dollar, you can't do better than buying Now Utilities.

Advanced Software's QuickTools (\$89.95; [800] 346-5392 or [408] 733-0745) centers on Power Strip, a versatile document and application launcher. Power Strip is very nice, but the stars in this package are the supporting cast. Snipper, a screen-capture control panel, is as good as any and is the one I use most often these days. It offers users a choice of capturing the whole screen, any window, a menu, or a selection. It also works on multiple-monitor setups, capturing a selected screen at a time. About all that's missing is the ability to capture in TIFF format. Work Saver, an automatic saver

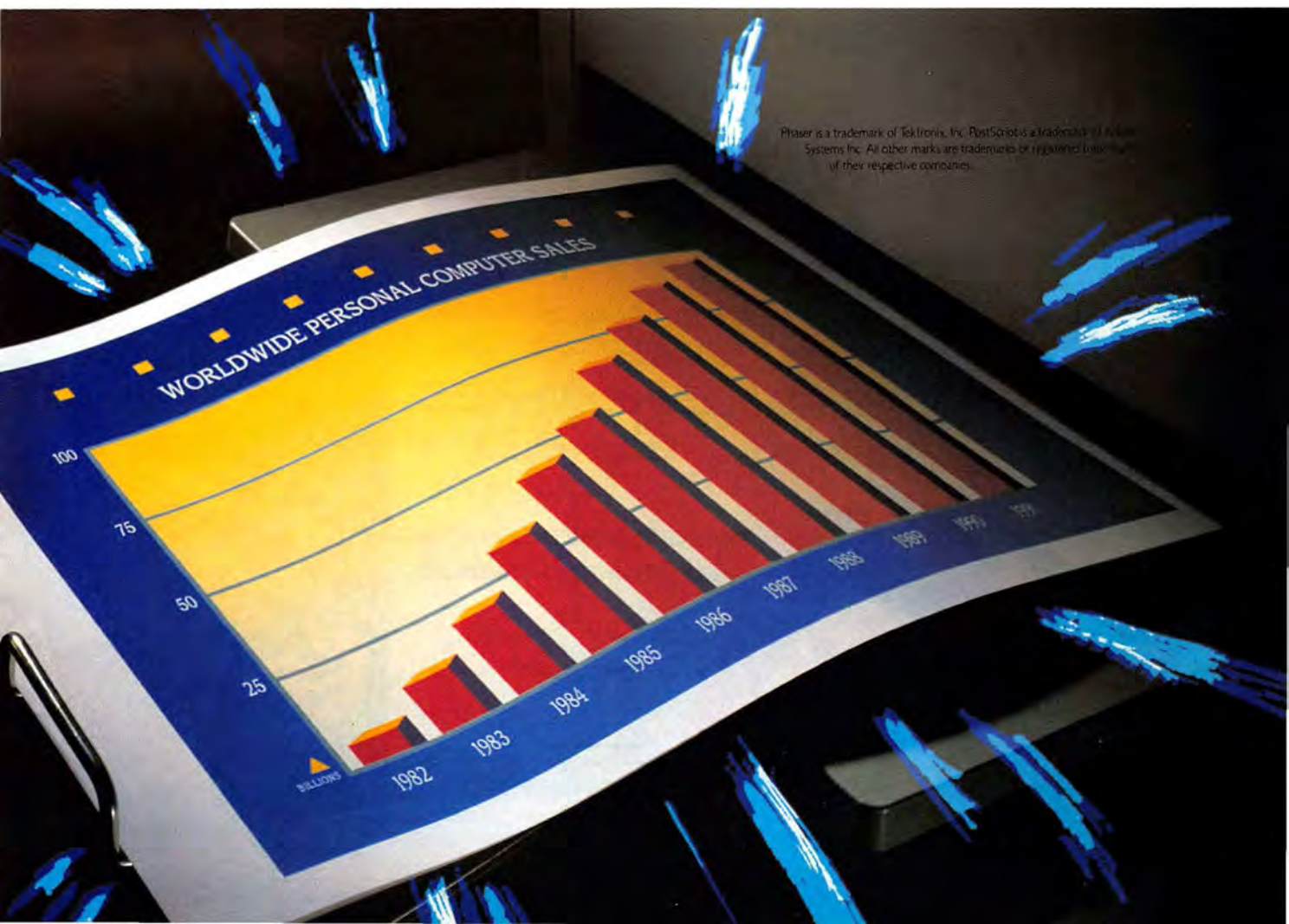
that works in all applications, is another big winner in this package. If you've ever lost unsaved work because of a crash, you need a program such as Work Saver. The weakest of the QuickTools are the screen saver, Sunset, and the light-duty security program, Barricade. If you need either function, you'll do better elsewhere.

Zedcor's Desk (\$399.95; [800] 482-4567 or [602] 881-8101) is somewhat of an oddball. In abilities it resembles the integrated packages, but in structure it's more like the utility collections. Integration among its elements is limited, hardly going beyond standard cut, copy, and paste. The best two programs are Draw and Paint, both capable and quite useful simple graphics programs. Because they read a wide variety of formats, Draw and Paint are useful as viewing as well as creation tools. The word processor is weak, but the spreadsheet program is a decent medium-duty tool. Early versions were somewhat buggy; the recent 3.07 release should be better and is often available at steep discounts.

Power Utilities, from ALSoft ([713] 353-4090), is brand-new and a stunner. It's based on well-accepted, solid programs and adds new programs of great value. For \$129 you get MasterJuggler, DiskExpress II, and five other programs. MasterJuggler is the best font, DA, sound, and Fkey manager, surpassing Suitcase II 2.0. DiskExpress II can optimize your disk better than any other tool can. (I'd leave the automatic-optimizing feature off, though, for maximum efficiency and safety.)

ScreenEclipse fades the intensity of your monitor after a preset time (the amount of the fade is also controllable), but it has no effect on background operations at all. It makes far smaller demands on both your RAM and hard-disk space than the popular screen-saver packages do.

MenuExtend enhances your menus by providing hierarchical submenus of folders. DiskCheck scans your disks for problems. DiskFlash is the best menu-bar disk-activity indicator. Within the Power





## PERSONAL MACINTOSH PERSONAL BEST

Utilities package, the weak link is MultiDisk, a soft partitioner. If you want to partition your hard disk, use your formatting utility, not MultiDisk.

### A Pick for the Road

My pick of the month is the best new PowerBook product I've seen. It's Nisus Compact, Paragon's new version of its excellent Nisus word processor (\$150; [619] 481-1477). Nisus Compact is very PowerBook-oriented; the basic program uses only 363K on your hard disk. It doesn't include on-line help, a spelling checker, or a thesaurus, but the program is modular and three drop-in modules (a spelling checker and thesaurus, a menu-command modifier and mail merge, and Balloon Help) are available. The Help module is sent to users when they register; the others are extra-cost items that can be ordered from Paragon (\$29.95 each; \$39.95 together). This modular approach saves lots of space and lets you customize the program to your specific needs. For example, although the Paragon spelling-

**If you're a PowerBook user who's feeling a little cramped, note that now available from Microtech are 80-megabyte replacement drives for the 20- and 40-megabyte drives that Apple ships in the PowerBooks.**

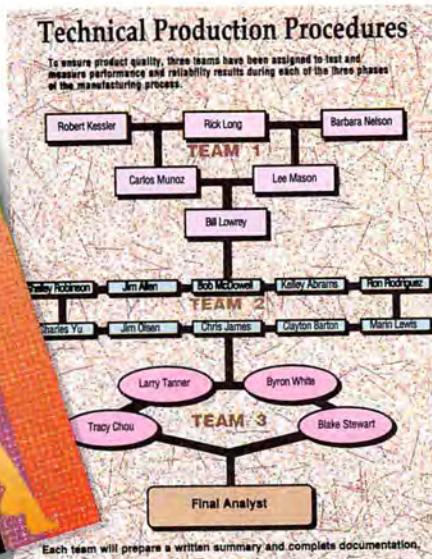
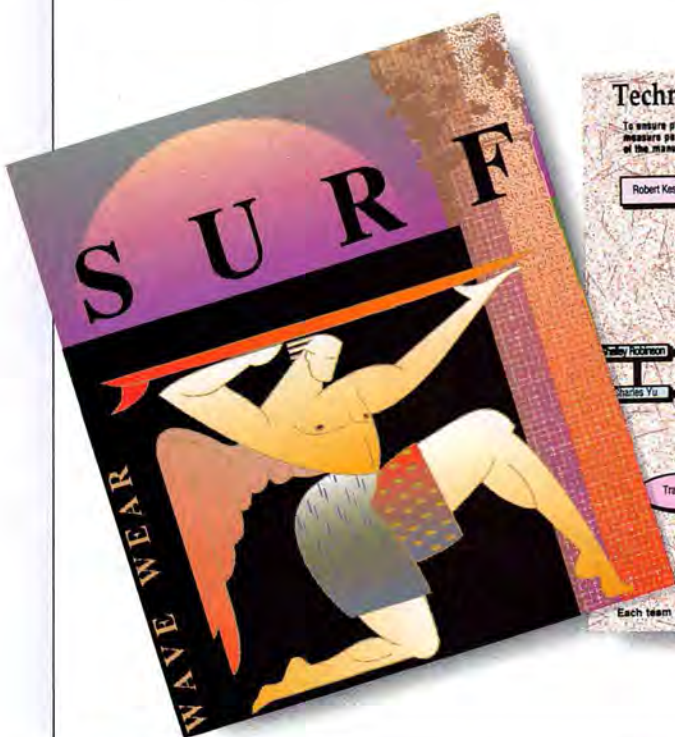
and-thesaurus module is cheap and quite good, I prefer Thunder 7, from Baseline (\$99.95; [901] 682-9676). Paragon's modular approach lets me have my preferred spelling checker without wasting precious PowerBook space.

Nisus Compact also includes several special PowerBook-oriented features. The

information bar has the best battery-life indicator I've seen so far. Sleep is available as a command on the File menu, and nice fat I-beam and vertical-bar cursors (which are much easier to see than Apple's standard single-pixel-wide cursors) are options. Nisus Compact runs in a 900K RAM partition.

What's missing is Nisus' graphics module and most of the full program's macro ability. Nisus Compact does include the powerful search-and-replace features of the full-sized version of Nisus, and they have been made even easier to use. A brand-new feature called File Clerk offers nice organizational and retrieval powers for all your files, not just files from Nisus or other word-processing documents. Nisus Compact uses Claris' XTND technology to read and save many file formats. The program comes with just two translators, for MacWrite 5.0 and MacWrite II, but many more are readily available from a variety of sources, including DataViz ([203] 268-0030) and MasterSoft ([602] 277-0900).

It's a graphics program.    It's a business program.    Is not.





Nisus Compact's performance is equal to that of Nisus; the program is startlingly fast and well behaved. The feature mix and the modular expandability of the program make it a winner for desktop-Mac as well as PowerBook users.

### Road Tips

A few final PowerBook notes: Now available from Microtech ([800] 626-4276) and APS ([800] 235-2750) are 80-megabyte replacement drives for the 20- and 40-megabyte drives Apple ships in the PowerBooks. These drives use the fast Quantum GO-80 mechanism. They're about twice as fast as the smaller drives. Installation is not for the faint of heart, though, and is best handled by an authorized dealer. At press time, these drives were priced from \$599 to about \$675.

If you're replacing a 40-megabyte PowerBook drive, there's a good resale market for them (to people with 20-megabyte drives). The going price is in the \$250-to-\$300 range. The 20-megabyte drives don't have much resale value

(they're too small and too slow). Some vendors are planning small cases for them, but the case prices are expected to be \$100 to \$150 — not a bargain. The 20-megabyte drives do make great paperweights and conversation pieces, though — they're really cute.

For those of you who frequently lose sight of the vertical bar and I-beam cursor on your PowerBook display, Dennis Brothers has written a neat extension called Cursor Fixer (it's available in ZiffNet/Mac's Download & Support Forum in Library 3 as CURFIX.CPT). It adds thick cursors to all applications, including the normally hard-to-patch Microsoft products. ResEdit-savvy users can easily add as many as 23 more cursors to Cursor Fixer's list of fattened cursors.

### Scrambled Easter Egg

When it comes to cute Easter eggs, the newer versions of WriteNow have a great one, and it's relatively easy to find. Start by bringing the About WriteNow box to the screen (it's the top item on the Apple

menu). Move your cursor anywhere in the box, and hold down the Option key as you click the mouse.

Watch the ending carefully. It changes slightly each time you view it. Click again in the box to make the Easter egg go away. You'll find this Easter egg in versions 2.2 and 3.0. The first person who reported it was Loïc Y. Thommeret, of Sacramento, California.

Here are a few special egglets for System 7 users. Turn on Balloon Help, and start checking all the extensions in the System Folder. If you have them installed, pay particular attention to MacsBug and QuickTime. Bet you didn't know what you could learn from Balloon Help. Several people have reported these egglets; the first was Clayton Chen, of Calgary, Alberta, Canada. ☺

Steven Bobker, a former editor-in-chief of *MacUser*, currently keeps busy acting as sysop for *MacUser's* on-line service, ZiffNet/Mac, among other projects. He can be reached on Zmac at 72511,45 and welcomes all comments.

Is so.      Is not.      Is so.



## New Aldus SuperPaint 3.0.



(Suggested retail price \$199.)

Let's put this argument to rest. It's both. SuperPaint® is the all-in-one program that makes it easy to do it all—combining paint, draw, and image enhancement—saving you time and money.

As you can see, its range of capabilities makes it perfect for either business users or graphic designers. And now with the added color capabilities, EPS import and export, textures, and gradients, it gives you even more creative options (by the way, it still works great in black and white).

Of course, the best way to settle any argument over SuperPaint is to try it.

See your Aldus dealer or call 206-628-2320 for more information.



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Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.



### The Norton Utilities for Macintosh 2.0

⑦ The Norton Utilities for Macintosh 2.0 combines and enhances the features from two award winning products: SUM II and Norton Utilities. The combination of these two products results in the first Macintosh utility software package to offer fully integrated advanced disk repair & recovery, automatic backup, data security, productivity tools and system enhancements in one informative, easy-to-use product. This unbeatable combination allows you to protect valuable data and make day-to-day functions a breeze. Whether working on your Macintosh at home or while networked into a corporate-wide system, if you own a hard drive, the Norton Utilities for Macintosh 2.0 is the product for you. **Publisher: Symantec UT10151**

# \$99



### FileGuard 2.7

★★★★★

⑦ "It's sleek, fast, and safe. I highly recommend it." MacUser April 1991. Protect your Hard Drives and Partitions from unauthorized access (including security bypass with a system diskette), copying and erasure; Applications and File/Folders

(including system folder) from unauthorized access, deletion, and/or illegal copying; Desktop (including system folder) from alterations by unauthorized user; Keep an eye on System Usage with the system users log which continuously tracks user/group activity. System 7 compatible. **Publisher: ASD Software**

Single User UT10135

# \$139



### Lotus 1-2-3 For Macintosh

⑦ At last, a 1-2-3 spreadsheet that is designed exclusively for the Macintosh computer. 1-2-3 for Macintosh takes full advantage of the rich graphical environment of Macintosh while delivering significant new spreadsheet features. And of course it's compatible with other new versions of 1-2-3 and Excel. A whole new kind of 1-2-3 created expressly for Macintosh. The result is a rich design that makes even the most complex spreadsheet tasks easy. 1-2-3 for Macintosh sets a new standard for what a Macintosh spreadsheet should be. System requirements, any Macintosh with a hard disk. 2MB RAM under System 6 or later. 3 MB RAM under 7. **Publisher: Lotus Development BUS0188**

# \$349

### Init Manager 1.1 or Thunder 7 1.0.5

#### Init Manager 1.1

⑦ Full featured INIT control utility permits auto-disabling of crashing INITs, scanning and detection, on/off selection, ordering, grouping functions and more. Also shipped with a powerful system analyzer design to generate detailed diagnostic system reports. (CDEV) **UT10187 \$34.**

**Thunder 7 1.0.5** ⑦ Interactive spelling checker and thesaurus designed to provide a single dictionary to reduce disk space for all your applications and desk accessories. Complete with auto-correction glossary, search and replace, look-up thesaurus and readability analysis capabilities. (CDEV)

**Publisher: Baseline SPL0029**

# \$56



### WristSaver/MousePad

The WristSaver cradles your wrist with a contoured neoprene rubber pad and a nylon covering. It's ergonomically designed to

support your wrist at the proper angle to help avoid the pain associated with Carpal Tunnel Syndrome. The WristSaver MousePad provides a comfortable rest for your wrist, plus a conventional mouse pad. Simple finger movements replace sliding the entire arm or hand.

**Manufacturer: LB Innovators**

**WristSaver/MousePad ACC0635 \$15.**

**WristSaver ACC0560 \$15.**

**Bundle BND0033**

(Available in Gray, Black, Red or Navy)

# \$25

### Software Bridge/Mac 2.0.1

⑦ Macintosh users translate between over 30 different Mac and PC word processing formats for over 800 possible translation paths. DOS to Mac translation is invisible: simply insert a DOS disk into a Mac SuperDrive, double-click on a DOS document, and Software Bridge automatically loads identifies, translates and launches it into your Mac format, ready to edit! Uses the Document Manager for one-step Mac to DOS, Mac to Mac, and DOS to DOS translation. Also translate files located on external DOS disk drives or file servers. "It's strongest in the field of reliable DOS-to-Mac conversions of complex documents" (MacWeek 11/6/90). Includes MountPC to access DOS disks from the Mac's Superdrive as if they were Mac disks.

**Publisher: Argosy Software, Inc. COM0099**

# \$99

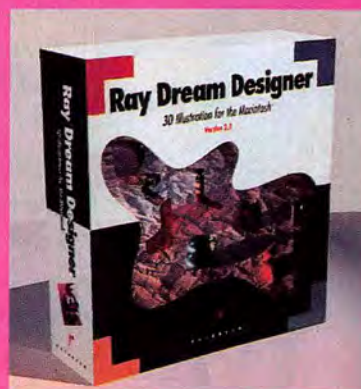


### WindoWatch 1.52

⑦ Track the hours you spend on a project with WindoWatch. It's a must for professionals who bill their services by the hour (or minute). WindoWatch operates in the background, automatically generating a timesheet as you work. Use WindoWatch to collect and merge timesheets from team members over the network or export timesheet information to a spreadsheet. Don't miss any opportunity to accurately bill your clients. After all, time is money. **Publisher: ASD Software UT10264**

Single User

# \$89



### Ray Dream Designer 2.0

⑦ You don't have to settle for flat illustrations and designs any longer. Ray Dream Designer's drawing and text tools, for creating lines, circles, ellipses, polygons, Beziars, colors and shadings, are virtually the same as those in most 2D illustration programs. The only difference is, now your objects have the realistic look of three dimensions. Wrap them around an object or text for instant dimension. Comes with a library of 3D solid textures you can use as-is or customize. Lighting, shadows, transparency, reflections and, best of all, perspective are all handled automatically. Requires: Mac II family with coprocessor, 32-bit QuickDraw; 4MB RAM and hard drive. **Publisher: Ray Dream GRA0292**

# \$589



# FREE

## POWER USER'S TOOL KIT 7.0

If you're not already a collector of Steven Bobker's highly successful Power User's Tool Kit - compiled exclusively for MacWAREHOUSE - you'll want to start with version 7.0. It's stuffed with ten useful applications, utilities, desk accessories, INTTs and System 7.0 extensions for your Macintosh. They're great productivity enhancers and you'll be surprised how easy they are to use.

**Steven Bobker Presents THE POWER USER'S TOOL KIT 7.0**

**All New!**

- Save-a-Tree - so you can print out text-only files with reduced pages on the front side of one!
- LaunchINIT 2.0s - logs the activity of your Mac - vital if you take a computer tax deduction.
- Applicon - System 7.0 users can switch among open applications by clicking on files on your desktop. Plus much, much more.

**And the best thing is, the programs are shareware so you can try them FREE when you order from MacWAREHOUSE. You pay only \$1.50 shipping and handling if you want the disk. If you wish to continue using the software, some authors ask that you pay a small fee (\$5-\$25). All the details are explained on the disk, which is yours to keep. Please remember to ask for item # AAA 0013 when you order.**

**ALL NEW!**

- Save-a-Tree - so you can print out text-only files with reduced pages on the front side of one!
- LaunchINIT 2.0s - logs the activity of your Mac - vital if you take a computer tax deduction.
- Applicon - System 7.0 users can switch among open applications by clicking on files on your desktop. Plus much, much more.

**And for System 7.0 Users:**

- Applicon - System 7.0 users can switch among open applications by clicking on files on your desktop. Plus much, much more.
- Applicon - System 7.0 users can switch among open applications by clicking on files on your desktop. Plus much, much more.

**MacWAREHOUSE**  
1-800-255-6227

### White Knight V.11

• The perfect low-cost solution to almost any Mac telecommunicator's needs. Offers the kind of power associated with products costing hundreds of dollars more, but is easier to learn and more flexible. 270+ page user manual is geared to all levels of experience. Winner of 11 awards including MacWorld's World Class Software Award 1987-1991. Publisher: FreeSoft COM0060



**\$85**

### RésuméExpert

• Create job-winning résumés quickly with RésuméExpert. Ten editions available by profession. Each edition features 40+ professionally written and fully-formatted Microsoft Word résumé templates. Simple to use - just select a template and substitute your personal information. MacUser 10/89 awarded RésuméExpert 4 mice and raved about its "excellent" manual and writing tips. Also rated a top 200 software program by MacUser 12/89. Requires MS Word. System 7 compatible. Publisher: A Lasting Impression BUS0087



**\$49ea.**

### Aldus SuperPaint or Aldus Gallery Effects\*

**Aldus SuperPaint 3.0**  
• Five time winner of MacWorld magazine's World Class Award, new Aldus SuperPaint combines painting, drawing, and image enhancement, and includes 1 thru 24 bit color, textures, gradients, and EPS graphics. GRA0112 \$133.  
**Aldus Gallery Effects** • 1991 MacUser's Editors' Choice Award for Best Visual Resource. Aldus Gallery Effects automatically transforms grayscale and color bitmap images into stunning, sophisticated art, with 16 master effects including Graphic Pen, Watercolor, and Charcoal. Works directly within programs like SuperPaint and PhotoShop, or as an application or DA.  
Publisher: Aldus GRA0279



**\$129\***

### NEW FaxMania Business Fax Cover Sheets

• FaxMania Business Fax Cover Sheets is an imaginative collection of 80 fax cover sheets designed for business, home, and fun. Send a Birthday fax and much more. The categories include: Meetings, Finances, Announcements, Ecology, International, Reminders, Invitations, Sports, Travel and more. The fax cover sheets are provided in word processing formats. The formats for the Macintosh include: WriteNow, MacPaint, MacWrite and MS Word. They can be edited, sent electronically or printed and used as paper faxes. Publisher: T/Maker GRA0317



**\$29**

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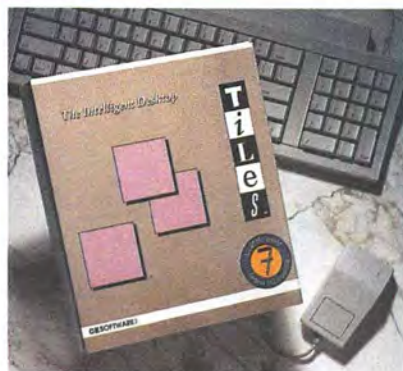


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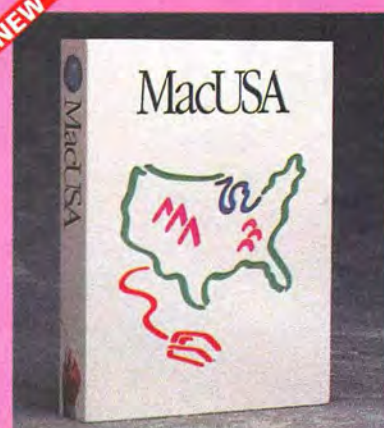
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Publisher: PC Globe GRA0246

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⑦ Connect any one of 10 Macs to a PC via modem or AppleTalk network to control virtually any DOS program. Run programs at full speed, access VGA graphics, extended/expanded memory and PC peripherals. Copy and paste text or graphics between programs, print DOS files onto your Mac printer. Transfer files, translate documents in either direction and mount DOS disks using included Software Bridge/Mac.

Publisher: Argosy Software, Inc. COM0098



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Standard Version ENT0277



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**NEW**

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Does not require PostScript. Cable is included. **Publisher: Insight Development UT10098**

**\$95**



### BeagleWorks

With the introduction of BeagleWorks, the true meaning of integrated software has finally been defined. BeagleWorks includes seven modules so fully integrated you can easily access the Word Processor, Database, Spreadsheet, Chart, Paint, Draw and Communications modules from anywhere in the program. Exclusive to BeagleWorks is a revolutionary technology called In-Context Editing™. This gives you the ability to access or create an item from one file without having to leave the module in which you are currently working. The word processor features irregular text wrap, multiple columns anywhere on the page. The spreadsheet boasts an automatic sum tool, as well as in-cell editing. And 256 custom colors are featured in all the modules except communications. **Publisher: Beagle Brothers BUS0189**

**\$185**

### Active Memory 2.0



Turn your PowerBook into a power organizer with Active Memory! When traveling, manage info like sales leads, field results or travel expenses. Enter data your way in a free-form Info field. Once back at headquarters, remind networked co-workers about upcoming deadlines. Import contact lists and setup reminders to call them. For daytimers, use Active

Memory to print your things-to-do list or travel itinerary. Make it easier to manage your data in the office or on the road. **Publisher: ASD Software BUS0207**

**\$125**

### Star Trek Sound Clips

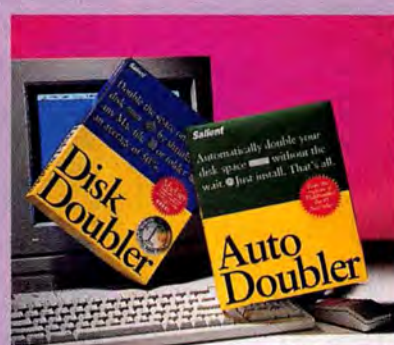


Enliven your next presentation with these official digital Star Trek Sound Clips. Both volumes include sound effects, music cues, and dialog from Star Trek the Original Television Series.

Now, you can slyly slip in the Transporter sound effect for a slide dissolve, or zap the Klingon competition with a phaser blast. They work with most desktop presentation and multimedia applications. The clips also work with SoundMaster (included) to replace those boring Mac System beeps with your favorite Star Trek sounds. **Publisher: Sound Source**

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ENT0418 \$29.  
**Vol. II: The Final Frontier**  
ENT0419

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### AutoDoubler

AutoDoubler is the easiest way to increase your hard disk capacity. It works in the background to automatically keep your hard disk compressed. It's lightning quick and completely transparent, so it won't interrupt your work. In fact, AutoDoubler's new patent-pending technique lets your Macintosh use files and applications while they are still compressed! It's fully compatible with almost all applications, desk accessories, and system extensions. **UTI0254 \$49.**

### DiskDoubler 3.7

DiskDoubler gives you total control of file compression-archiving for modem transfer, compressed backups, self-expanding files, and fast copying of files. AutoDoubler and DiskDoubler combined give you the ultimate in speed, convenience, and control. System 7 Savvy!  
**Publisher: Salient UT10179**

**\$49**



### ULTRA 9600 Bundle

Hayes top Performer... The Hayes ULTRA 96 comes with the award winning Smartcom II for the Macintosh software, RS232 cables, and HayesConnect software. ULTRA 96 practically operates without you! Automatic Feature Negotiation creates the best combination of speed, error-control, and data compression whenever you use your ULTRA modem. It achieves 100% error-control using both the V.42 standard and MNP 2-5 protocols, and 4 to 1 data compression for 38,400 bps throughput with V.42bis. HayesConnect allows users to share modems or other serial devices such as plotters or printers across and AppleTalk network.  
**Manufacturer: Hayes MOD0065**

**\$749**

### Canvas 3



Canvas 3 is fast, powerful, easy to learn and provides all the tools you'll need to create and print professional quality color or monochrome graphics. Use in a wide range of design projects including desktop publishing, technical illustration, design graphics, architectural rendering, engineering drawing, presentations, multimedia and general business graphics. Canvas 3 offers unparalleled productivity. Create illustrations from scratch with our new freehand tool, or scan existing artwork and let Canvas auto trace its outlines for you. System 7 Savvy! **1991 MacUser Editor's Choice Award.**

**Publisher:**  
Deneba Software  
GRA0280



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**Publisher: Softsync, Inc. FIN0048**



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| Fuji                                      |     |
| BND0077 MF2DD 100PK                       | 59. |
| BND0076 MF2HD 50PK                        | 59. |
| I/O Design, Inc.                          |     |
| ACC0528 Ultimate Classic SE Carrying Case | 65. |
| ACC0665 Notebook EX Carrying Case         | 75. |
| LB Innovators                             |     |
| BND0033 WristSaver/MousePad Bundle-Red    | 25. |
| Targus, Ltd.                              |     |
| ACC0252 MacPlus/SE Carry Case (black)     | 59. |
| ACC0675 Universal Notebook Case           | 69. |

### BUSINESS & PRESENTATION

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|--------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| AmazeInc                                                                                                                                   |              |
| BUIS0221 Cathy Daily Planner                                                                                                               | 39.          |
| Ark Interface                                                                                                                              |              |
| BUIS0220 Workspace                                                                                                                         | 89.          |
| ASD                                                                                                                                        |              |
| BUIS0207 Active Memory 2.0                                                                                                                 | 125.         |
| After Hours Software                                                                                                                       |              |
| DAT0076 TouchBase 2.0                                                                                                                      | 79.          |
| A Lasting Impression                                                                                                                       |              |
| ResumExpert: Word 30/4.0 version, Cover Letters, Manager, Sales & Marketing, Students, Computer Science & Engineering, Financing & Banking | ea. 49.      |
| Aldus                                                                                                                                      |              |
| BUIS0066 Persuasion 2.1                                                                                                                    | 325.         |
| Altain                                                                                                                                     |              |
| BUIS0211 IN CONTROL 1.0                                                                                                                    | 95.          |
| Beagle Brothers                                                                                                                            |              |
| BUIS0189 BeagleWorks                                                                                                                       | 185.         |
| SID0006 BeagleWorks Competitive Upgrade                                                                                                    | 95.          |
| CE Software                                                                                                                                |              |
| GRA0070 CalendarMaker 3.0                                                                                                                  | 31.          |
| Chena Software                                                                                                                             |              |
| BUIS0208 Fair Witness 1.1                                                                                                                  | 315.         |
| Claris                                                                                                                                     |              |
| BUIS0201 ClarisWorks                                                                                                                       | 209.         |
| SID0002 ClarisWorks Trade-up                                                                                                               | 99.          |
| DAT0064 FileMaker Pro                                                                                                                      | 205.         |
| UPG0005 FileMaker Pro Upgrade                                                                                                              | 99.          |
| BUIS0058 MacProject II 2.5                                                                                                                 | 345.         |
| BUIS0178 Resolve                                                                                                                           | 98.          |
| SID0003 Resolve Trade-up                                                                                                                   | SPECIAL 175. |
| BUIS0065 SmartForm Designer                                                                                                                | 289.         |
| Data Description                                                                                                                           |              |
| STA00112 Data Desk 3.0                                                                                                                     | 459.         |
| JAM Software                                                                                                                               |              |
| DAC0033 Smart Alarms 3.1(1-4 users)                                                                                                        | 125.         |
| Kaetron                                                                                                                                    |              |
| BUS0218 FlowChart Express                                                                                                                  | 93.          |
| Lotus Development Corporation                                                                                                              |              |
| BUIS0188 Lotus 1-2-3 for Macintosh                                                                                                         | 349.         |
| SID0004 Lotus 1-2-3 Competitive Upgrade                                                                                                    | 89.          |
| Meca                                                                                                                                       |              |
| FIN0039 A. Tobias' Managing Your Money 4.0                                                                                                 | Micro 3000   |
| Microsoft                                                                                                                                  |              |
| BUIS0223 Microsoft Excel 4.0                                                                                                               | 295.         |
| UPG0010 Microsoft Excel 4.0 Upgrade                                                                                                        | 99.          |
| BUIS0008 Microsoft PowerPoint 2.01                                                                                                         | 245.         |
| BUIS0181 Microsoft Project 1.1                                                                                                             | 445.         |
| BUIS0186 Microsoft Schedule+ 5 Pack                                                                                                        | 125.         |
| BUIS0014 Microsoft Works 2.0                                                                                                               | 155.         |
| BUIS0088 The Microsoft Office 2.0                                                                                                          | 475.         |
| Now Software                                                                                                                               |              |
| BUIS0212 Now Up to Date-single                                                                                                             | 65.          |
| Pastel Development                                                                                                                         |              |
| BUIS0199 DayMaker                                                                                                                          | 65.          |
| Power Up                                                                                                                                   |              |
| BUIS0153 Address Book Plus 2.0                                                                                                             | 63.          |
| BUIS0073 Calendar Creator                                                                                                                  | 44.          |
| Reality Technologies                                                                                                                       |              |
| FIN0068 WealthBuilder (Mac)                                                                                                                | 95.          |
| Round Lake Publishing                                                                                                                      |              |
| Legal LetterWorks or Sales                                                                                                                 | ea. 45.      |
| BOK0007 LetterWorks                                                                                                                        | 45.          |
| Softsync Publishing                                                                                                                        |              |
| FIN0048 Accountant, Inc. 3.0                                                                                                               | 335.         |
| Symantec Corporation                                                                                                                       |              |
| BUIS0217 GreatWorks 2.0                                                                                                                    | 199.         |
| SID0001 GreatWorks Sidegrade 2.0                                                                                                           | 85.          |
| BUIS0055 More 3.1                                                                                                                          | 265.         |
| Synergy                                                                                                                                    |              |
| STA0018 Kaleidagraph 2.1                                                                                                                   | 149.         |
| Teleware, Inc.                                                                                                                             |              |
| FIN0087 M.Y.O.B. 3.0                                                                                                                       | 139.         |
| Timeslips                                                                                                                                  |              |
| BUIS0043 Timeslips III 2.1                                                                                                                 | 195.         |
| T/Maker                                                                                                                                    |              |
| BUIS0193 The PowerBundle                                                                                                                   | 159.         |
| Visionary Software                                                                                                                         |              |
| BUIS0190 First Things First 2.0                                                                                                            | 45.          |
| Wyoming Software                                                                                                                           |              |
| FIN0013 Business Sense 1.5                                                                                                                 | 129.         |

### COMMUNICATIONS & NETWORKING

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|------------------------------------------|------|
| Argosy                                   |      |
| COM0098 RunPC/Network                    | 279. |
| COM0103 RunPC/Remote                     | 139. |
| COM0099 Software Bridge/Mac 2.0.1        | 99.  |
| CE Software                              |      |
| COM0101 QuickMail 2.5.1 (1-5 users)      | 249. |
| COM0100 QuickMail 2.5.1 (1-10 users)     | 375. |
| Dayna                                    |      |
| NET0125 DaynaPORT E/Z                    | 275. |
| NET0076 DaynaPORT E/SE                   | 179. |
| Ex Machina                               |      |
| COM0111 Notify 1.1 Personal Edition      | 109. |
| Farallon Computing                       |      |
| NET0120 EtherMac II/10T Card Mac II      | 165. |
| NET0121 EtherMac 30/10T Card SE/30       | 199. |
| NET0122 EtherMac II Thinnet/Local Mac II | 165. |
| NET0123 EtherMac 30/10T Card Mac IIs     | 299. |
| NET0124 EtherMac 30/10T Card SE/30       | 199. |
| NET0125 EtherMac 30/10T Card IIs         | 299. |
| NET0007 PhoneNET Plus, SE & II           | 31.  |
| NET0019 PhoneNET StarController          | 879. |
| NET0122 Timbuktu 4.0                     | 129. |
| NET0034 Timbuktu/Remote 3.0              | 129. |
| FreeSoft                                 |      |
| COM0060 White Knight V.11                | 85.  |

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| Insignia (Full line available) |      |
| COM0107 Soft PC Universal 2.5  | 195. |
| Hayes                          |      |
| COM0095 HayesConnect 3.0       | 89.  |
| COM0015 Smartcom II 3.3        | 84.  |
| Synergy                        |      |
| COM0003 VersaTerm Pro 3.6      | 177. |
| COM0002 VersaTerm 4.6          | 90.  |
| TechWorks                      |      |
| NET0133 GraceLAN 2.0 50-user   | 289. |

### DESKTOP PUBLISHING

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|-------------------------------|------|
| Aldus                         |      |
| DTP0072 PageMaker 4.2         | 495. |
| UPG0003 PageMaker 4.2 Upgrade | 150. |
| DTP0040 Personal Press 1.01   | 99.  |
| Quark, Inc.                   |      |
| DTP0071 XPress 3.1            | 569. |

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| Computer Care                                 |       |
| DRI0335 Mac Rescue w/SCSI Port                | 195.  |
| DRI0479 BookRAM 2S for Powerbook              | 249.  |
| Mass MicroSystems                             |       |
| DRI0253 DataPak 45 Removable                  | 649.  |
| DRI0254 DataPak IIC                           | 735.  |
| DRI0354 DataPak 88 Classic                    | 849.  |
| DRI0451 DiamondDrive 120 MB Fixed Drive       | 649.  |
| DRI0452 DiamondDrive 210 MB Fixed Drive       | 1049. |
| DRI0453 DiamondDrive 320 MB Fixed Drive       | 1699. |
| DRI0454 DiamondDrive 510 MB Fixed Drive       | 2149. |
| Micon Technology                              |       |
| DRI0412 Xceed MacroColor II 24-Bit Video Card | 469.  |
| Peripheral Land, Inc.                         |       |
| DRI0375 Infinity 86 Removable single          | 849.  |
| DRI0119 Infinity Turbo 40 Meg Removable       | 649.  |
| PowerUsers                                    |       |
| BND0094 44 Meg Removable-cartridge            | 579.  |
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| DRI0204 60 Meg External Hard Drive            | 399.  |
| DRI0205 80 Meg External Hard Drive            | 449.  |
| DRI0326 100 Meg External Hard Drive           | 499.  |
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| SuperMac                                      |       |
| DRI0437 Spectrum/8.24 PDQ                     | 899.  |
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| Spectrum/8si or Series III                    | 539.  |

### EDUCATIONAL & ENTERTAINMENT

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| AmazeInc                                                                                                                                      |                 |
| ENT0400 The Far Side Computer Calendar                                                                                                        | 45.             |
| Baseline                                                                                                                                      |                 |
| ENT0403 Talking Moose/Cartoon Carnival 4.0                                                                                                    | 23.             |
| Broderbund                                                                                                                                    |                 |
| CDR0042 Just Grandma and Me-CD-ROM                                                                                                            | 39.             |
| GRA0268 Kid Pix 1.2                                                                                                                           | 35.             |
| Where is Carmen Sandiego?                                                                                                                     | ea. 29.         |
| EDU0291 The Playroom-Color 2.0                                                                                                                | 29.             |
| Centron Software, Inc.                                                                                                                        |                 |
| ENT0329 BlackJack Strategy Tester/BlackJack Ace                                                                                               | 65.             |
| ENT0384 Canis                                                                                                                                 | 25.             |
| ENT0277 Casino Master Standard Version                                                                                                        | 39.             |
| ENT0289 Casino Master Deluxe Color Version                                                                                                    | 45.             |
| ENT0383 PuzzleMaster                                                                                                                          | 29.             |
| HyperGlot                                                                                                                                     |                 |
| Word Torture: Spanish, French, German, Russian                                                                                                | ea. 35.         |
| MECC                                                                                                                                          |                 |
| ENT0381 The Oregon Trail                                                                                                                      | 29.             |
| Number Munchers or Word Munchers                                                                                                              | ea. 29.         |
| Nordic Software                                                                                                                               |                 |
| EDU0276 Word Search Deluxe                                                                                                                    | 35.             |
| EDU0142 Preschool Pack                                                                                                                        | 35.             |
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| Sound Source                                                                                                                                  |                 |
| Star Trek Vol. 1 or II                                                                                                                        | SPECIAL ea. 29. |
| Zondervan Publishing House                                                                                                                    |                 |
| MacBible-Greek or NIV                                                                                                                         | ea. 79.         |
| BOK0021 MacBible - King James Version                                                                                                         | 79.             |
| BOK0033 MacBible NRS w/Apocrypha                                                                                                              | 79.             |

### FOUNTS & APPLICATIONS

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|---------------------------------|------|
| Adobe Systems, Inc.             |      |
| DAC0028 Adobe TypeAlign         | 62.  |
| UPG0264 Adobe Type Manager 2.03 | 59.  |
| FON0351 Adobe Type On Call 2.0  | 59.  |
| UPG0295 Adobe Type Reunion      | 41.  |
| Altsys                          |      |
| FON0114 Fontographer 3.5        | 265. |
| FON0284 Metamorphosis Pro 2.03  | 89.  |
| Ares Software                   |      |
| FON0361 FontMonter              | 62.  |

### GRAPHICS & MULTIMEDIA

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|-------------------------------------------|---------|
| AbraCadabra                               |         |
| CAD0032 Design Your Own Home-Architecture | ea. 65. |
| Adobe Systems, Inc.                       |         |
| GRA0304 Adobe Premiere                    | 305.    |
| DTP0054 Illustrator 3.2 (w/ ATM 2.0)      | 369.    |
| GRA0125 Streamline 2.0                    | 122.    |
| GRA0191 PhotoShop 2.0                     | 549.    |
| Aldus                                     |         |
| GRA0092 Digital Darkroom 2.0              | 259.    |
| GRA0305 FreeHand 3.1                      | 395.    |
| DTP0079 Gallery Effects Vol. I            | 329.    |
| GRA0131 Super 3D 2.5                      | 129.    |
| HYPO027 SuperCard 1.6                     | 189.    |
| GRA0112 SuperPaint 3.0                    | 133.    |
| Claris                                    |         |
| CAD0029 ClarisCAD 2.0                     | 625.    |
| GRA0271 MacDraw Pro                       | 275.    |
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| Deneba                                    |         |
| GRA0280 Canvas 3                          | 249.    |

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| Dream Maker                                 |      |
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| CAD0024 Blueprint 2.1                       | 219. |
| PC Globe                                    |      |
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| Thought I Could                             |      |
| GRA0302 Wallpaper                           | 39.  |
| Virtus                                      |      |
| GRA0278 Virtus WalkThrough                  | 309. |

### INPUT & OUTPUT

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|-------------------------------------------------------|-------|
| Appoint, Inc.                                         |       |
| ART0219 Mouse Pen Pro Mac                             | 65.   |
| ART0220 Thumbelina Mac                                | 65.   |
| Articulate Systems                                    |       |
| INP0160 Voice Navigator II                            | 599.  |
| INP0206 Voice Impact Pro                              | 199.  |
| INP0207 Voice Impact                                  | 79.   |
| INP0208 Voice Record 2.1                              | 59.   |
| Caere                                                 |       |
| INP0205 Typist Plus Graphics                          | 475.  |
| Canon                                                 |       |
| INP0184 Still Video Camera Computer Imaging Kit Color | 899.  |
| INP0186 Still Video Black Standalone Camera           | 499.  |
| CoStar                                                |       |
| INP0196 AddressWriter Envelope Printer                | 479.  |
| INP0194 Stringray Platinum                            | 89.   |
| Datadesk International                                |       |
| INP0174 Mac 101E Keyboard Platinum                    | 129.  |
| Kenington                                             |       |
| INP0060 Turbo Mouse ADB (SE or II)                    | 109.  |
| Key Tronic                                            |       |
| INP0156 MacPro Plus Keyboard                          | 145.  |
| Microtek                                              |       |
| INP0180 Microtek ScanMaker 6002S                      | 1449. |
| Mouse Systems                                         |       |
| INP0132 Little Mouse ADB                              | 74.   |
| INP0163 A3 Mouse                                      | 85.   |
| INP0199 A3 Trackball                                  | 75.   |
| Sharp (Full line available)                           |       |
| COM023 Wizard Oz 6200 (128Kram)                       | 399.  |
| Sophisticated Circuits                                |       |
| CC0035 Power Key w/Quickies Lite 2.0                  | 75.   |
| SuperMac                                              |       |
| MON0224 20" SuperMatch Color Display                  | 1799. |
| ThunderWare                                           |       |
| INP0116 LightningScan 400                             | 369.  |
| INP0189 LightningScan Pro 256                         | 499.  |
| Wacom                                                 |       |
| INP0179 Digitizing Tablet 6" x 9"                     | 589.  |

### UPGRADES & ACCELERATORS

|                                           |       |
|-------------------------------------------|-------|
| DayStar Digital                           |       |
| PowerCache 33 MHz                         | 749.  |
| PowerCache 33 MHz w/882                   | 979.  |
| PowerCache 40 MHz                         | 949.  |
| PowerCache 40 MHz w/882                   | 1199. |
| PowerCache 50 MHz                         | 1459. |
| PowerCache 50 MHz w/882                   | 1799. |
| DRI0224 FastCache ICI                     | 269.  |
| DRI0421 FastCache ICI                     | 319.  |
| DRI0500 FastCache C40 for Quadra 700/900  | 379.  |
| PowerUser8                                |       |
| CHP0066 2MB PowerBook 100/140/170 Upgrade | 259.  |
| CHP0067 4MB PowerBook 140/170 Upgrade Kit | 399.  |
| CHP0068 6MB PowerBook 140/170 Upgrade Kit | 499.  |

### MODEMS & FAX

|                                     |      |
|-------------------------------------|------|
| Dove                                |      |
| MOD0053 Dove Fax Plus w/ VOICE Mail | 269. |
| Global Village                      |      |
| MOD0087 PowerPort V. 32             | 499. |

|                                           |      |
|-------------------------------------------|------|
| MOD0086 TelePort/Full FAX 2.0             | 219. |
| Hayes                                     |      |
| MOD0065 Bundle 9600 ULTRA SmartModem      | 749. |
| PowerUsers                                |      |
| MOD0062 24/96 Mini Send/Receive Fax Modem | 199. |
| MOD0043 2400 Mini Modem                   | 99.  |
| MOD0047 Mini Send Fax 2400/9600           | 149. |
| MOD0071 9600 bps/V.32Bis 42bis Modem      | 399. |
| MOD0070 2400 bps/V.42bis Mini Modem       | 149. |
| Prometheus                                |      |
| MOD0084 Home Office 24/96                 | 269. |
| MOD0085 Ultimate Home Office 24/96        | 499. |

### UTILITIES & PROGRAMMING

|                                               |         |
|-----------------------------------------------|---------|
| Abbott Systems, Inc.                          |         |
| UTI0236 Calc+                                 | 39.     |
| UTI0113 CanOpener 2.0                         | 59.     |
| Alsoft                                        |         |
| UTI0269 Alsoft Power Utilities Bundle         | 85.     |
| Alsys                                         |         |
| UTI0224 EPS Exchange 2.0                      | 89.     |
| Alysis                                        |         |
| UTI0232 SuperDisk 2.0                         | 49.     |
| ASD Software, Inc.                            |         |
| UTI0135 FileGuard 2.7                         | 139.    |
| UTI0130 FileGuard 2.7 - Office Pack 5         | 479.    |
| UTI0264 WindowWatch 1.52-Single               | 89.     |
| Baseline Publishing                           |         |
| UTI0187 Int'l Manager 1.1                     | 34.     |
| UTI0183 ScreenShot 1.2                        | 34.     |
| Berkeley System Design                        |         |
| UTI0119 After Dark 2.0                        | 29.     |
| UTI0231 More After Dark/After Dark 2.0 Bundle | 45.     |
| Casa Blanca Works, Inc.                       |         |
| UTI0273 Drive 7                               | 49.     |
| CE Software                                   |         |
| UTI0188 QuickKeys 2 v2.1                      | 94.     |
| UTI0213 Tiles                                 | 69.     |
| Dantz                                         |         |
| UTI0246 DiskIt Pro                            | 74.     |
| UTI0227 Retrospect 1.3                        | 147.    |
| Insight Development                           |         |
| UTI0098 MacPrint 1.3                          | 95.     |
| Kenington                                     |         |
| PassProof                                     | ea. 65. |
| Salient                                       |         |
| AutoDoubler or DiskDoubler 3.7                | ea. 49. |
| Symantec Corporation                          |         |
| UTI0151 Norton Utilities for the Mac 2.0      | 99.     |
| UTI0214 Symantec Antivirus for Mac 3.0 (SAM)  | 65.     |
| UTI0241 Symantec Utilities for Mac 2.1 (SUM)  | 95.     |
| LNG0051 THINK C 5.0                           | 199.    |

### WORD PROCESSING

|                                                 |      |
|-------------------------------------------------|------|
| Baseline                                        |      |
| SPL0029 Thunder 7 1.0.5                         | 56.  |
| Caere                                           |      |
| UTI0237 OmniPage 3.0                            | 475. |
| UTI0202 OmniPage Professional                   | 669. |
| Calera                                          |      |
| UTI0215 WordScan                                | 249. |
| Claris                                          |      |
| WRD0026 MacWrite II 1.1                         | 89.  |
| Microsoft                                       |      |
| WRD0050 Word 5.0                                | 295. |
| UPG0001 Word 5.0 Upgrade                        | 125. |
| Sensible Software                               |      |
| SPL0018 Sensible Grammar 2.0                    | 55.  |
| TGS                                             |      |
| LNG0053 Prograph 2.5 Compiler Ver.              | 309. |
| T/Maker Co.                                     |      |
| WRD0051 WriteNow 3.0                            | 159. |
| WRD0008 WriteNow 3.0 Competitive Upgrade        | 69.  |
| UPG0007 WriteNow 3.0 Upgrade                    | 49.  |
| WordPerfect                                     |      |
| WRD0034 WordPerfect 2.1                         | 295. |
| SID0007 WordPerfect 2.1 Competitive Upgrade     | 139. |
| UPG0006 WordPerfect 2.1 Upgrade                 | 89.  |
| WordStar                                        |      |
| SPL0030 American Heritage Electronic Dictionary | 55.  |
| SPL0028 Correct Grammar 3.0                     | 49.  |
| WRD0053 Correct Letters                         | 32.  |
| WRD0054 Correct Quotes                          | 32.  |
| WRD0052 Correct Writing                         | 39.  |

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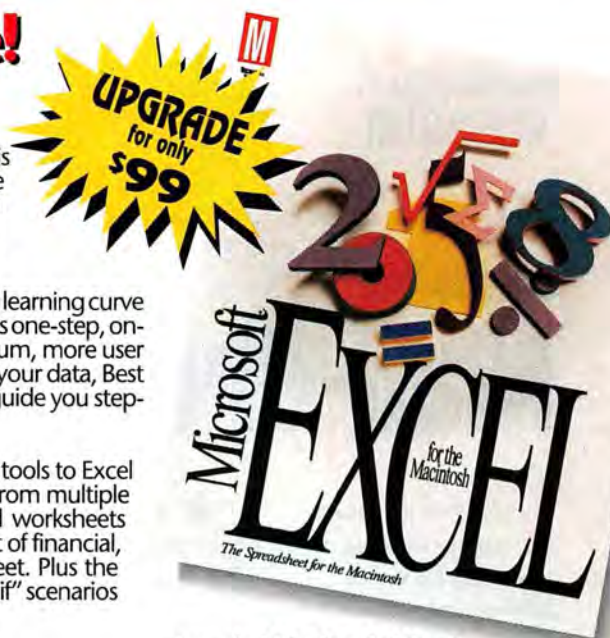
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| MACINTOSH CLASSIC                                                                  |                   |                          |                                                              |                                                             |




The Mac Classic comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Additional memory for your Mac Classic is provided by an Expansion Board, which slides into a slot on the Classic's motherboard. The Expansion Board can be purchased with 1MB of memory (for a total of 2MB), and then 2 1MB SIMMS can be added to the Expansion Board later for a total of 4MB. Or, you can install a 3MB Expansion Board, which brings your Mac Classic up to its full 4MB. **CHP0050 1MB Expansion Board.....\$79** **CHP0051 3MB Expansion Board.....\$179**

|                                                                                    | STANDARD     | FOR 2MB         | FOR 2.5MB                      | FOR 4MB         |
|------------------------------------------------------------------------------------|--------------|-----------------|--------------------------------|-----------------|
|  | 4-256K SIMMS | ADD 2-1MB SIMMS | ADD 2-1MB SIMMS & 2-256K SIMMS | ADD 4-1MB SIMMS |
| MACINTOSH PLUS & SE                                                                |              |                 |                                |                 |


The Mac Plus and Mac SE have four available slots on the motherboard, which originally contain four 256K SIMMS modules — totalling 1 megabyte (1MB) of memory. To upgrade, you can replace each 256K module with a 1MB module, but you must do this in pairs. Replace two 256K modules and you will have a total of 2.5MB of memory. (That's the two new 1MB modules plus the original two 256K modules.) Replace all four modules and you'll have 4MB. (You should save the 256K modules for later use if you want to pass your Mac on to someone else.)

|                                                                                    | STANDARD          | FOR 4MB         | FOR 6MB         | FOR 10MB        |
|------------------------------------------------------------------------------------|-------------------|-----------------|-----------------|-----------------|
|  | 2MB SURFACE MOUNT | ADD 2-1MB SIMMS | ADD 2-2MB SIMMS | ADD 2-4MB SIMMS |
| MACINTOSH LC                                                                       |                   |                 |                 |                 |

The Mac SE/30, II, IIfx, Ilex, and IICI each come with a total of eight slots. The standard configuration has four 256K SIMMS modules, or a total of 1 MB. Here, memory must be upgraded in multiples of four. This allows for expansion from 1MB to 4, 5 or 8MB on the II and IIfx, and up to 32MB on the SE/30, Ilex and IICI, depending on whether you are using 1MB, 2MB or 4MB SIMMS. If you are upgrading a Mac IICI, you must use SIMMS rated at 80ns or faster.

|                                                                                     | STANDARD     | FOR 4MB         | FOR 5MB                        | FOR 8MB         | FOR 9MB (IICI only)            | FOR 16MB (IICI only) | FOR 32MB        |
|-------------------------------------------------------------------------------------|--------------|-----------------|--------------------------------|-----------------|--------------------------------|----------------------|-----------------|
|  | 4-256K SIMMS | ADD 4-1MB SIMMS | ADD 4-1MB SIMMS & 4-256K SIMMS | ADD 8-1MB SIMMS | ADD 4-2MB SIMMS & 4-256K SIMMS | ADD 8-2MB SIMMS      | ADD 8-4MB SIMMS |
| MACINTOSH SE/30                                                                     |              |                 |                                |                 |                                |                      |                 |
|  | 4-256K SIMMS | ADD 4-1MB SIMMS | ADD 4-1MB SIMMS & 4-256K SIMMS | ADD 8-1MB SIMMS | ADD 4-2MB SIMMS & 4-256K SIMMS | ADD 8-2MB SIMMS      | ADD 8-4MB SIMMS |
| MACINTOSH II, IIfx                                                                  |              |                 |                                |                 |                                |                      |                 |
|  | 4-256K SIMMS | ADD 4-1MB SIMMS | ADD 4-1MB SIMMS & 4-256K SIMMS | ADD 8-1MB SIMMS | ADD 4-2MB SIMMS & 4-256K SIMMS | ADD 8-2MB SIMMS      | ADD 8-4MB SIMMS |
| MACINTOSH IICI, Ilex                                                                |              |                 |                                |                 |                                |                      |                 |

The Mac IISI comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Four slots are available for additional memory, and you must upgrade your Mac IISI in multiples of four. The Mac IISI is expandable to 5, 9 or 17MB, depending on whether you are using 1, 2 or 4MB SIMMS, and the SIMMS modules must be rated at 100ns or faster.

|                                                                                     | STANDARD          | FOR 5MB         | FOR 9MB         | FOR 17MB        |
|-------------------------------------------------------------------------------------|-------------------|-----------------|-----------------|-----------------|
|  | 1MB SURFACE MOUNT | ADD 4-1MB SIMMS | ADD 4-2MB SIMMS | ADD 4-4MB SIMMS |
| MACINTOSH IISI                                                                      |                   |                 |                 |                 |

The Mac LC comes with a standard 2MB of memory, surface mounted (soldered) to the motherboard, with two slots available for additional memory. The Mac LC can be upgraded to 4, 6, or 10 MB, depending on whether you are installing 1, 2 or 4MB SIMMS.

|         |     |               |       |       |
|---------|-----|---------------|-------|-------|
| CHP0012 | 1MB | SIMMS - 120ns | ..... | \$45  |
| CHP0013 | 1MB | SIMMS - 100ns | ..... | \$55  |
| CHP0022 | 1MB | SIMMS - 80ns  | ..... | \$59  |
| CHP0008 | 1MB | SIMMS - 70ns  | ..... | \$69  |
| CHP0042 | 2MB | SIMMS - 80ns  | ..... | \$99  |
| CHP0011 | 4MB | SIMMS - 80ns  | ..... | \$159 |

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## How to Buy

# Mail-Order Products

**B**uying from a mail-order company is the easiest way to shop for Mac hardware and software — or a Mac itself, for that matter. Just find the ad in the computer magazine, get out your credit card, dial the number, and place your order. You could have your long-awaited hard-disk drive or spreadsheet program on your desk the next morning. Most mail-order companies promise big savings; fast delivery; and, in some cases, money-back guarantees. But before you start shopping by phone, shop around for the right mail-order company. A little caution can protect you from fly-by-night operations and shoddy merchandise. For more on your consumer rights (and responsibilities) when buying from a mail-order company or dealer, see "Buying Smart," January '91, page 174.

By Victoria von Biel

❓ Large companies — such as MacConnection and MacWarehouse — are unlikely to disappear overnight, but if you're dealing with a small company for the first time, it pays to do a little research and ask a few questions. Post a message on a bulletin-board service (*MacUser's* on-line service, Ziff-Net/Mac, for example), and ask other users for feedback on their experiences.

✔ Know exactly what you want before you call. It's hard to browse over the phone, and in many cases, the person on the other end is trained to take your order only, not to help you make a decision. If possible, get some hands-on experience before you dial — go to a dealer to comparison-shop, or borrow a friend or colleague's copy of the software package you're interested in. Your local user group may also be able to give you advice.

❓ To avoid having to return the merchandise, find out if the product you're interested in is compatible with your system. You should be able to get help from an Apple dealer, or you can call Apple customer service at (800) 776-2333 or (408) 996-1010.

✔ Use a credit card. This can be beneficial, because if you use your card, some credit-card companies will do such things as double your warranty or give you a refund if you find a lower price elsewhere. Even if your credit-card company won't go that far, it's worth using plastic to pay for your purchases. If the product is never delivered or is defective, you can contest the charge with your credit-card company and the credit-card company will deal with the mail-order company.

❓ Confirm the price when you place your order. Sometimes the printed price isn't current or there are hidden charges. If the price is higher than you thought it would be, it's worth trying to see if the company will accept the lower price. You should also find out how much the delivery charge is.

💰 Some companies will waive the delivery charge if you order at a certain time of day (after 8 P.M., for example). The savings depend on what and how much you buy, but you may be able to shave at least \$5 off the final cost.

❓ Ask about delivery methods — find out what carriers are used, how fast they

are, and how much each one costs.

❓ Because you're buying something sight-unseen, make sure the company has a return policy you're comfortable with. In most cases, a money-back guarantee or a trade-in policy is a must. Find out if you're responsible for paying shipping charges on returned goods and whether you'll be charged a "restocking" fee.

✔ Before you use your new merchandise, make sure it's exactly what you ordered — the correct model or version number, for example. Errors are not uncommon, and it's easier to return goods before they've been unpacked.

❓ If you're buying hardware, find out how the company handles repairs or replacements. Ask how quickly you can expect to get your equipment back if you have to send it in for service and whether the company offers loaner equipment.

✔ Technical support varies from company to company. When buying memory, for example, you may find that some companies offer step-by-step installation and troubleshooting advice over the phone; others send written instructions only. Unless you happen to be a techno-expert, it's best to work with a company that offers free technical support. ☐







## POWER TOOLS

Want to use that SCSI scanner in the office next door without having to move from your Mac? Applied Concepts' **SCSI Plus ACI 1074** (\$295) extends the length of any SCSI chain to 60 feet. It also improves signals on the bus, which helps foster SCSI cooperation among printers, disk drives, and other SCSI devices that don't quite get along. (619) 453-0090.

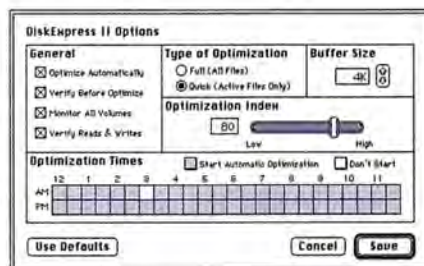
By John Rizzo

**Beef up your software:** You can teach your old apps new tricks by installing third-party add-on modules, even if your software doesn't have special plugs for add-ons. Alki goes Microsoft one better with **MasterWord for Word 5** (\$99.95) by letting you put as many as 28 commands onto a customizable tool palette you can move around the screen. It also lets you add watermarks behind text without having to program PostScript code. (800) 669-9673 or (206) 286-2600. \* Claris Resolve users who'd like to capitalize on that program's customizability can choose among three plug-in modules from Spreadware: **Minimum Requirements** (\$79) is designed for small-business financial management, **StatZ** (\$295) adds specialized statistics functions, and **SurveyZ** (\$249) lets you create surveys and then record and analyze the results. (619) 347-2365. \* **Word Finder Plus** (\$69.95), from Microlytics, is an add-on thesaurus that works within a variety of applications — Word, WordPerfect, and QuarkXPress, among others. This new version offers more than a million synonyms (by comparison, the average desk dictionary has fewer than 200,000 entries) in just 290K of disk space and 75K of RAM. (716) 248-9150. \* **Make . . . Repeats+** (\$59), from Acropolis Software, is an add-on for Claris' FileMaker Pro that lets you import data from non-FileMaker databases into FileMaker Pro's repeating fields. It can also eliminate duplicate records, combine records that have a common field, and convert every word in a text field into a separate record for indexes and dictionaries. (714) 768-8490.

**Defragging After Dark: DiskExpress II 2.11** is now the most advanced disk optimizer available — it automatically monitors your work habits and then places frequently used files at the front of an optimized hard disk



for faster access. You specify when you want DiskExpress to defragment your hard disk, and you can set it to tell you when defragmentation is necessary. Buy it as a stand-alone product (\$89.95) or as part of ALSoft's **Power Utilities** (\$129), a package of seven utilities including the perennial favorite font-handling utility, MasterJuggler; the disk partitioner MultiDisk; and MenuExtend, which lets you make menus hierarchical. (713) 353-4090. \* Also included in Power Utilities is the **ScreenEclipse** screen saver, which dims the screen instead of wasting processing power to draw cartoons. The advantage? Background activities such as file sharing aren't slowed down. ☞





# Problem-Free Printing

*Flaking, jaggy type?*  
*Unightly streaks on your*  
*best bond paper? Here's how*  
*to avoid some of the most*  
*common printer faux pas.*

**By Andy Ihnatko**

**G**etting laser-printed output from your Mac is a relatively simple procedure. Press Command-P and twiddle your thumbs a while, and eventually you'll receive something that is usually — but not always — what you asked for. Same fundamental principle as dealing with Santa Claus.

When you get underwear for Christmas, you have no choice but to kiss your aunt anyway and hope for a Super Nintendo *next* year. But your laser printer is different — every blotch, streak, and foul-up happens for a reason. Here are some of the problems you may encounter and some tips about what you can do to avoid them.

Contributing editor Andy Ihnatko pines for the screeching of a dot-matrix printer.

## **Splotching**

If some areas of black are splotched dark gray, you're probably running low on toner powder. Take out the cartridge, and rock it back and forth along its long axis to redistribute the toner.

Semiregularly spaced splotches of black down the length of the page usually mean there's some debris on the fusion rollers. Let the printer cool down, and then gently attack the rollers with a cotton swab or the cleaning pad that comes with your printer.

## **Too Black**

Check the print-density wheel; it may be set too high. Alternatively, yank out the toner cartridge and check the printer's grounding spring. See the manual for the exact position, but usually you'll find the spring in the printer's lid, where it's supposed to make contact with the center of the cartridge and act as an electrical ground. Make sure it hasn't slipped out of place.

## **Missing Elements**

If you're using a page-layout or graphics program and an individual element fails to appear on the page, you may have turned on a "proof printing" option in your application. Proof printing saves printing time by substituting empty placeholders for graphic images. If you see an empty box or one displaying only a filename, the program may not have been able to locate a placed image on-disk; delete that element from the document, and try placing it again.

## **The Wrong Font**

If Courier unexpectedly pinch-hits for a PostScript font, the laser-printer driver probably couldn't locate the right outline- or printer-font file. These files should be stored in the System Folder, unless you're using a font-management utility, such as Suitcase II or MasterJuggler, in which case the outline-font and bit-mapped-font files should be stored in the same folder, not necessarily the System Folder.

## **Jaggy Type**

When you get the right font but it's horribly jaggy, it's probably because the driver couldn't find the PostScript outline-font file for that face and you had the Font Substitution option in the Page Setup dialog box turned off. The driver substituted the highest-quality bit-mapped version of the chosen font.

## **Flaky Type**

If the surface of your paper is too rough, toner won't stick to it properly and will begin to flake off eventually. Switch to a smoother stock. If you're committed to the rough stuff, keep the toner in place by blasting the page with a setting spray (found in art-supply stores) or hair spray after you've printed it.

## **Not Black Enough**

If expanses of solid black show up as gray (but type and other small areas are OK), you've got an older-style engine that doesn't produce great solid blacks. Live with it.

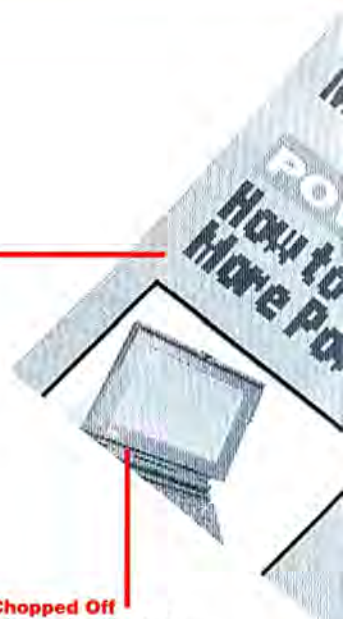
If the whole page is a uniform gray wash, first check to see if you're out of toner or whether the print-density wheel on the printer is set too low. Another possibility is that you've refilled the toner cartridge once too often and the drum is so worn that toner can't stick to it. Or maybe the paper's too moist — humid air makes it tough for toner to cling to a page. Or the corona wire may need cleaning — see your printer manual for instructions on how to clean it.

## **Image Chopped Off**

You may have placed a page element too close to the edge of the paper. Keep everything at least an eighth of an inch away from the edge.

## **Jaggy PostScript Graphics**

When that spiffy EPS graphic you worked so hard to produce looks like a low-quality 72-dpi bit-mapped image, it's because the program couldn't find the EPS image and printed the bit-mapped PICT preview instead. Delete the bit-mapped image from the document, and place the original graphic again.







#### Thin White Line

If there's a white horizontal line on your pages and it seems to be exactly one printer dot high, then most likely some of the memory in your printer has blown out. Fixing this requires a trip to the dealer or manufacturer.

#### Thin Line Down the Page

If you're lucky, there's just a blot of dried toner on the cleaning pad next to the fusion rollers. Replace the pad. More expensive to fix is a scratch on the drum, because you have to replace the cartridge. The most expensive problem to fix is a scratch on the fusion rollers, in which case they need to be replaced.

If the smear is splotchy and runs down one edge of the paper, then your printer's separator belt is probably either dirty or broken. Replace it.



# HARDWARE THAT FITS



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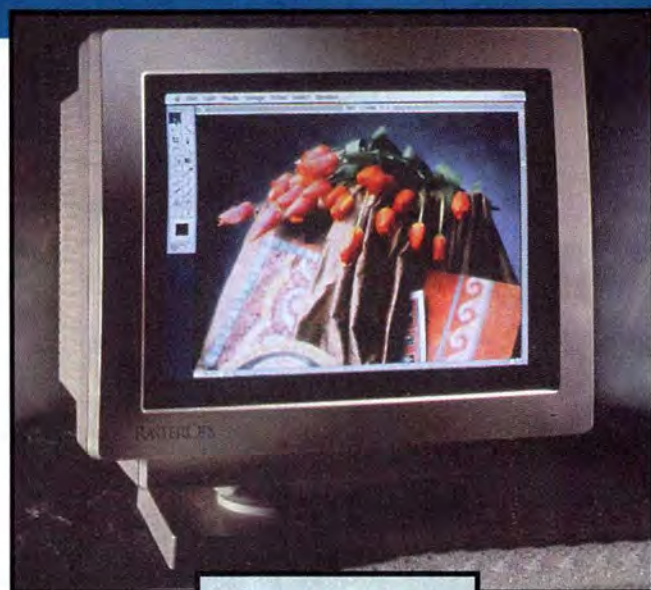


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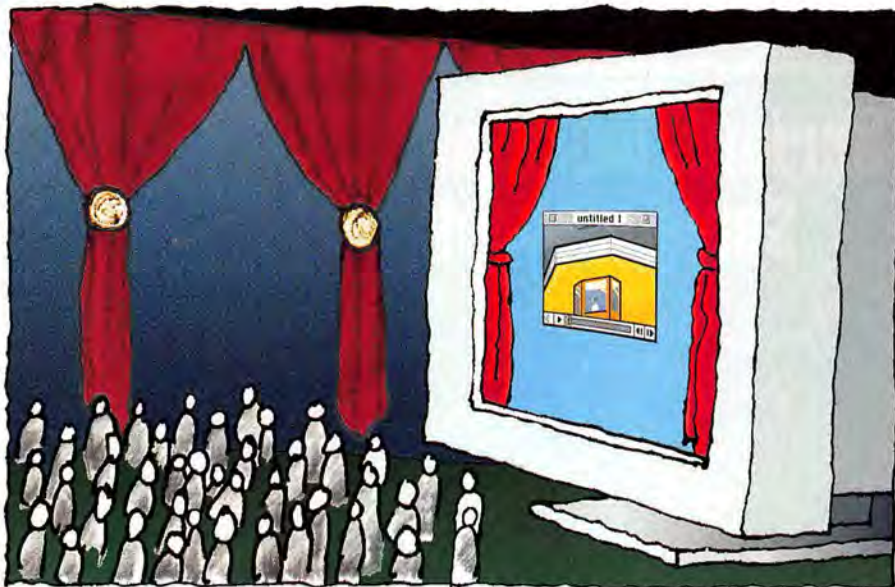
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# QuickTime Believer

*Apple's new system extension QuickTime lets you make movies on your Mac.*

**By Bob LeVitus**



**T**he first time I saw QuickTime I was, to say the least, underwhelmed. I didn't see the point. I thought the flickery postage-stamp-sized movies were a neat hack, with almost no application in day-to-day computing. I know now that I was wrong.

I was so obsessed with what QuickTime couldn't do that I never noticed what it could. Last January's Macworld Expo (which could have been called QuickTime Expo, with all the QuickTime stuff being shown) was the clincher — it was there that I finally realized that QuickTime, even with its current limitations, has many uses.

My problem was that I'd hoped that QuickTime would let me transfer my collection of home videos to disk, edit and title them, and then export them back to tape. Or let me watch *Terminator 2* running off a CD-ROM on my 13-inch color monitor. It won't — at least not yet. More-powerful hardware and better compression will make these things possible sooner than you think, though.

The QuickTime of today, little flickery movies and all, is still awesome stuff. Those little movies can be used in a variety of situations, such as training and presentations, and can even be used to good effect in entertainment and education products.

So now that I'm a QuickTime believer, let's see if I can bring you around. By the way, I'm assuming that you know what QuickTime is and a little about how it works. Even if you know a lot about it, I urge you to read (or

reread) "QuickTime in Action," by Russell Ito (*MacUser*, May '92, page 84), which contains just about everything you need to know.

## **Training with QuickTime**

One of QuickTime's most compelling applications is in training, and you don't have to be some kind of video producer to make great training films. All you need is the ability to open a file, choose from a menu, and click a mouse.

I used to teach desktop publishing at a community college. My students were mostly novices, and I'd have to demonstrate certain concepts — how Font/DA Mover works, where a file goes when you save it, how to make hanging indents — at least a thousand times each semester. Although the course materials included handouts, some students needed to have a technique demonstrated several times before they got it. With QuickTime, I could have avoided the repetition by creating a movie about each technique.

Mac developers are now scrambling to include QuickTime training movies with their products. It won't be long before you see those little movies in tutorials and even in help balloons. You'll turn on Balloon Help, point at something, and see a movie about it that includes a soothing voice-over that explains what you're seeing. Even if you hate Balloon Help, you have to admit that balloon movies will be better for some things than a paragraph of cryptic, dry text.



## BEATING THE SYSTEM

And don't think it's just for computer training — you can use QuickTime movies to train almost anyone about almost anything. One of the first companies to do just that is Allied-Signal Aerospace, in Phoenix, Arizona, which is using Quick-

Time movies to augment electronic manuals for mechanics on the shop floor. To learn a procedure, a mechanic clicks through a HyperCard stack in which each procedure is illustrated with pictures, text, and QuickTime movies. Procedures that

used to take dozens of pages to explain on paper are now clearly illustrated with ten-second QuickTime movies.

Another great use for QuickTime is adding movies to your on-screen presentations. I recently gave a short presentation on desktop filmmaking (I told you I'd become a believer!) using Aldus' Persuasion 2.1 to create the on-screen slides. The best part of the presentation was the short QuickTime movie I used to demonstrate transparency and dissolve, two special effects that need to be seen to be understood.

With QuickTime you can take a presentation that would have been static and boring and bring it to life with a minimum of fuss. A bar graph with bars that grow 60 percent as you say to your audience, "Profits were up 60 percent last year," is much more powerful than a bar graph that just sits there. Using QuickTime in a presentation is easier than you think, and developers are making it even easier. For example, a soon-to-be released module for Excel will add a Create a Movie command to the Chart menu, so you'll be able to create animated charts almost effortlessly. Expect other products to add this kind of QuickTime support as well.

### The Video Age

Although QuickTime movies today are small and run at half the frame rate (or less) of theatrical movies or television, developers are still finding ways to present QuickTime movies in a variety of information and entertainment products. They don't look that bad either.

One of the most prolific producers of QuickTime movies on CD-ROM is Voyager (1351 Pacific Coast Highway, Santa Monica, CA 90401; [310] 451-1383). Its first batch of releases includes *You Can't Get There from Here* (1946-1960), which consists of motion-picture clips, cartoons, commercials, and educational films, all in QuickTime format. This CD-ROM even includes a classic high-school health-class film about "making out."

Other Voyager titles include *Poetry in Motion* — QuickTime movies of performances by Charles Bukowski, John Cage, Jim Carroll, Allen Ginsberg, Tom Waits, and others — and *Baseball's Greatest Hits*, a compendium of statistics, facts, and figures as well as pictures and QuickTime movies about America's national pastime.

I admit that the movies are small and don't look as good as the TV picture in

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**As software and hardware get more efficient, anyone will be able to make a movie with QuickTime. Shazam! You could be the next Steven Spielberg.**

your living room, but these pioneering titles are just the tip of the iceberg. Just wait — a few years from now, better software and hardware will make this stuff look spectacular.

As software and hardware get faster and more efficient, QuickTime movies will fill the screen and run at 30 frames per second, just as television does. An entire theatrical movie will fit on a single CD-ROM and will look as good on your Mac as it does in your living room — maybe better. Add some speakers, and your Mac is a home theater.

And anyone will be able to make a movie. Just dump some video from your camcorder to your hard disk, and then edit the footage and add sound, titles, and special effects. Shazam! Instant movie. Export it back to videotape or watch it right on your Mac. Who knows? You could be the next Steven Spielberg.

#### **A Producer's Toolkit**

If I've done my job right, you should be a QuickTime believer by now too. If so and you want to start using it, there are a few items you must have and several others you will probably want.

Start off with as much RAM-disk space as you can muster — QuickTime software is RAM-hungry, and QuickTime-movie files can be big.

Next you'll need software that lets you create your own QuickTime movies. Adobe Premiere is my pick. It's powerful and feature-packed and sports an intuitive interface.

If you want to import video from tape or a camcorder, you'll need a digitizer. I'm using the VideoSpigot, from Super-Mac. It's inexpensive (less than \$600 for NuBus; less than \$500 for the LC or IIsi), and it works flawlessly.

Beyond these basics, there are several nifty products that will make your life with QuickTime even better.

If you plan to do Mac training, check out Spectator (Rock Ridge Enterprises,



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## POWER TOOLS

# BEATING THE SYSTEM

## The System 7 File

Many applications open their windows to full-screen size. This can be a nuisance when you switch to the Finder and discover that all the disk icons are covered by inactive windows from open applications. It's particularly annoying on the PowerBook, where screen space is at a premium.

Mel Beckman suggests that instead of hiding and showing or resizing windows, you use what he calls a floating desktop window. Here's how it works: First create a folder, and name it Floating Desktop. Next, make aliases for all your disk (or volume) icons and the Trash icon, and put them into the Floating Desktop folder (you can also put aliases for remote volumes into the folder). Open the folder, size the window, and move it to a convenient location. Now when you switch to the Finder, clicking on this window gives you access to all your disks (or volumes) and the trash, even when an inactive-application window is covering the icons on the right side of the desktop. Put an alias of the Floating Desktop folder into the Startup Items folder, so that it opens every time you start up your Mac. You can also make a QuickKey that pops this window to the front.

Submit your favorite System 7 tips, either by mail or by modem, to ZiffNet/Mac's System 7 forum (please include your address as well). If you submit the month's best tip, you'll not only receive notoriety and fame but you'll also get a spiffy "I Beat the System" T-shirt.


620 Hidden Valley #102, Ann Arbor, MI 48104; [313] 663-0706; \$200). It's a screen recorder that captures activity on your screen and makes a QuickTime movie of it. Although it has a basic feature that lets you add a soundtrack, it doesn't have editing capabilities, so you'll want to edit your Spectator-generated movies in Premiere, which lets you easily add sound and smooth out any rough spots. I've made several small training videos this way — this method is fast, easy, and extremely powerful.

If you're in the market for a presentation program, check out Cinemation (Vividus, 651 Kendall Avenue, Palo Alto, CA 94306; [415] 494-2111; \$495) or Magic (MacroMind•Paracomp, 600 Townsend Street, San Francisco, CA 94103; [415] 442-0200; \$395). Cinemation and Magic let you do more than just paste in or import QuickTime movies. Each includes a full-blown animation program, painting and drawing tools, and several megabytes worth of ready-to-use animation clips. They're both so easy to use that even a klutz like me can create impressive presentations. Another benefit: Magic and Cinemation let you export your presentations as QuickTime movies; Persuasion, PowerPoint, and MORE don't. Cinemation even lets you import Persuasion and PowerPoint presentations and automatically animate the text.

I can hardly draw a straight line, so I'm particularly fond of MacroMind's ClipMedia Volume 1: Business & Technology (MacroMind•Paracomp, \$395). It's a CD-ROM packed with more than

600 megabytes of professionally produced graphics, animation, digitized video, sound effects, and music for you to incorporate into your presentations. It's classy and easily the nicest collection of its type. Even if you're a talented artist, I guarantee you'll find something on this disc — a movie, pattern, picture, animation, or sound — that will make your presentations look better and more professional.

If you just want a collection of budget-priced QuickTime movies, check out TV ROM from BMUG (1442A Walnut Street #62, Berkeley, CA 94704; [800] 776-2684 or [510] 549-2684; \$35). It contains almost 400 MooV files (MooV is the file type for QuickTime movies). It's an eclectic collection, organized into categories such as animals, talking heads, traffic, computers, and others, with a nicely designed HyperCard stack that lets you find and preview movies quickly and easily. The disk even includes the QuickTime extension and the Popcorn QuickTime movie viewer. There are some gems in the collection, but the overall quality of the clips is uneven at best. Still, for \$35 you won't find a better introduction to QuickTime.

Finally, what new technology would be complete without its very own stupid Mac trick? VideoBeep, also from Rock Ridge Enterprises (\$40), lets you choose QuickTime movies to play when your Mac beeps as well as when you start up, shut down, restart, insert a disk, eject a disk, or empty the Trash. 

Bob LeVitus is the author of *Son of Stupid Mac Tricks* and *Dr. Macintosh, Second Edition*.





*Do you have an undocumented Macintosh tip you're willing to share? MacUser pays \$25 for every tip used, and the Tip of the Month earns \$100.*

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You can also contribute tips electronically via Ziff-Net/Mac, the on-line service for MacUser. Send them to Gregory Wasson at 72511,36. Be sure to include your full name and mailing address along with the text of the tip.

**Compiled by  
Gregory Wasson**

### HyperCard

You can create a drop shadow around a field in HyperCard by assigning the shadow style to the field, but this method offsets the drop shadow only one way and restricts you to a solid black shadow. Here's a simple trick that lets you create a gray drop shadow that you can place anywhere behind the field (see Figure 1).

1. Choose the Field tool, and click on the field you want to give a drop shadow.
2. Copy the field, and then immediately paste it, thus creating the drop shadow.
3. Drag the drop shadow to the desired location on the original field.
4. Double-click on the field, or choose Field Info from the Objects menu. Check the Lock Text, Show Lines, and Transparent check boxes in the Field Info dialog box. Click on the Font button, choose a font, and type a 2 in the point-size box. Click on OK.
5. Select Send Farther from the Objects menu so that the drop shadow you've created appears behind the original field.

By using the Browse tool, you can see how the drop shadow will look to users of the stack.

V. R. Lewis  
Brunswick, OH

### PrintMonitor

I have a laser printer attached to my Mac, but I usually keep it turned off while I'm working.

To queue documents when the printer is off, I place an alias of the PrintMonitor application in the Apple Menu Items folder. Before queueing anything to print, I select PrintMonitor from the Apple menu and select Stop Printing from the File menu. I can then "print" documents to my heart's content without having to turn on the printer.

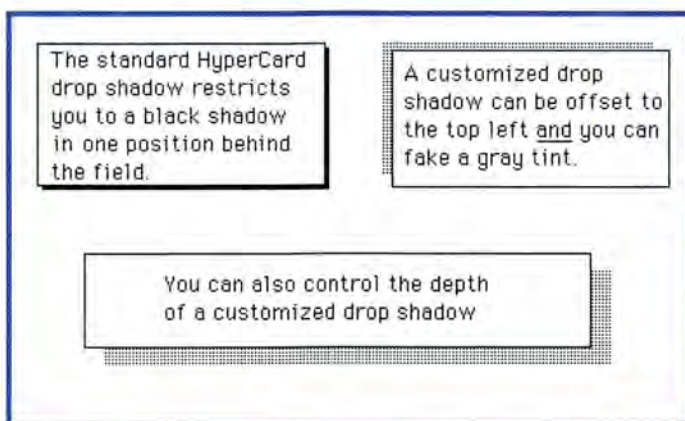
When I'm ready to print, I turn on the printer, wait for it to eject its startup page, go to the PrintMonitor application, and select Resume Printing from the File menu.

You can do the same thing under System 6 by placing a copy of PrintMonitor on the desktop, going to the Finder from your application, and clicking on PrintMonitor.

Philip W. Darby  
Byfield, MA

### Adobe Photoshop 2.0

Even if you don't have a 24-bit-color card for your monitor, you can still make use of a "poor man's" 24-bit color when you're in Adobe Photoshop. Whenever you want to see a "best" version of the color image on the



**Figure 1: You can't actually customize HyperCard's drop shadows, but you can fake a drop shadow by layering fields to create the illusion of a gray-tinted shadow.**

## Tip of the Month

### System 7

Recently I noticed that some applications in my Apple Menu Items folder had generic application icons that I couldn't replace with custom icons — when I selected these icons in the Get Info dialog box, the Paste command on the Edit menu was grayed out.

After some experimentation, I found that these items were DAs that I had copied to the System Folder from *locked* master disks. You're always supposed to keep your master disks locked,

right? Here's a case where you shouldn't. Once these applications were on my hard disk, I used the Get Info command, which showed that these applications were unlocked; however, they still acted locked.

The solution is to first *unlock* the master disk and then recopy the DAs into the System Folder. You can then paste in a new custom icon without difficulty.

Bob Nichols  
Kapaa, HI



monitor — during a demo or presentation of a design, for example — simply choose Indexed Color from the Mode menu and then click on OK. Sure looks like 24-bit color! You can do very little editing while in this mode, so use it only to view your image, and then return to RGB or whatever you use as your standard mode.

Rick Burress  
Phoenix, AZ

### Finder

If you like to create on-disk backup versions of PageMaker or Word files in addition to your working versions, you can save some time by duplicating the main version at the Finder level instead of using the Save As command. Saving a large PageMaker or Word file under a new name can be a

time-consuming process, but the Finder removes a couple layers of overhead and gets the job done faster.

Ward Barnett  
Minnetonka, MN

### SIMMs (System 7)

I recently upgraded my IIx by replacing the factory-installed SIMMs with four 4-megabyte chips. When I booted my Mac, I was pleased to see that I now had access to 17 megabytes of RAM. But when I looked at the memory bar in the About This Macintosh box, accessible from the Apple menu, I found that my system files were hogging more than 10 megabytes of memory. I do have a lot of INITs installed, but not that many!

Luckily, I discovered that in order to access anything

beyond 8 megabytes of memory, you must go to System 7's Memory control panel and turn on 32-bit addressing. After I did that, my system heap shrank back to its former svelte self and I had full access to the rest of my Mac's memory.

Scott D. Wilton  
Minneapolis, MN

*Note: This works only if you have an LC, LC II, Classic II, IIsi, IIfx, or Quadra — the II, IIx, IIcx, and SE/30 require that you install Connectix's MODE32, which Apple and Connectix made available free to Macintosh users last year. You can download MODE32 from an on-line service such as AppleLink, America Online, or CompuServe or contact your user group or Macintosh dealer.*  
— Ed.

### WingZ

WingZ's manual describes how to use the IF function to enter one of two expressions into a cell, depending on whether a given condition is true or false. For example, = IF ( E2 > = 60 , "Pass", "Fail" ) returns Pass if the value of cell E2 is greater than or equal to 60; otherwise it returns Fail.

The IF function may also contain additional IFs and criteria so that one of several expressions is placed into a cell. For example, the formula = IF ( E2 > = 90 , "A" , IF ( E2 > = 80 , "B" , IF ( E2 > = 70 , "C" , IF ( E2 > = 60 , "D" , "F" ) ) ) ) returns the letter grade for the 90-80-70-60 percentage grading scale.

John T. Holm  
Kettering, OH

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## Tips from the Experts

### Panorama II

The folks at ProVue sent us some of their favorite tips for the new version of their database program, Panorama II.

**Opening an Extra Window.** Panorama II normally opens a single window when you create a new database, but you can also open additional windows to see several views of the database at once. For example, you can see a list of checks and an individual check form at the same time.

To open an additional window, hold down the Command key while clicking on the pop-up-menu icon next to the window title. Select the view you want for the new window. After you've made your selection, Panorama II asks you where you want the new window to appear. Drag a box to specify the location (see Figure A), and then click on OK to open the window.

**Extra-Accurate Printing.** Panorama II normally prints to an accuracy of  $1/72$  of an inch. If you need more accuracy (for printing bar codes on an envelope, for example), create your form at two times or four times its actual size and then go to the Page Setup dialog box and enter 50 percent or 25 percent for the print size. This technique can increase the accuracy to  $1/300$  of an inch.

**Selecting Hidden Objects.** If one object is hidden behind another, you can select the hidden one by holding down the Command key as you click on the top object. Each Command-click selects the object directly behind the currently selected object. (By the way, this trick works in PageMaker too.)

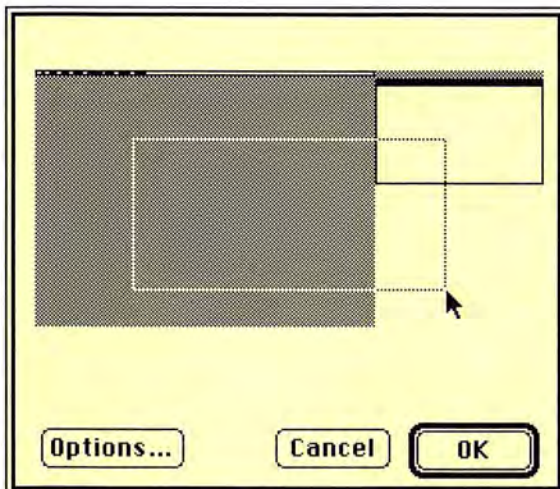


Figure A: Normally when you create a new database, Panorama II opens a single window. To open another window, select the view you want to appear in the new window and drag a box to specify its location.

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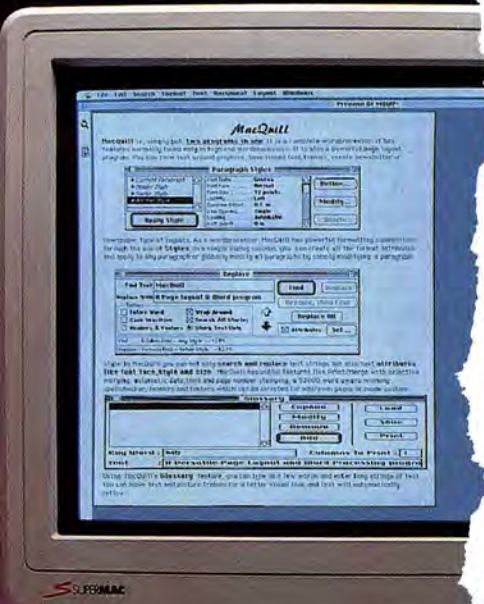
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*Don't want to wait for an answer? Post your question on ZiffNet/Mac, MacUser's on-line service, and get a reply from Bob, Andy, or one of the other MacUser experts. See the masthead in this issue for instructions on how to sign up.*

**By Bob LeVitus and  
Andy Ihnatko**

### Change Pixel Depth on the Fly?

**Q.** I have several applications that require a given pixel depth or number of colors to run or launch smoothly. Switching among the number of colors has gotten to be a real headache. Is there a shareware or commercial product that can customize applications for the correct setting so I don't have to constantly use the Monitors control panel?

Steven K. Laughlin  
Cincinnati, OH

**Bob:** There are freeware, shareware, and commercial solutions to this problem. The freeware solution is Switch-A-Roo, an Fkey by Bill (Pyro) Steinberg that lets you switch between any two pixel depths — say black-and-white and 256 colors — using a keyboard command equivalent.

On the shareware front, you've got your choice of Michael (Screen Shot/Exposure Pro) Whittingham's Screen Flipper INIT or Chris Sanchez's PixelFlipper INIT/control panel. Both let you change the pixel depth of any monitor simply by holding down a user-defined command-equivalent key and clicking anywhere on-screen. Both are System 7-

compatible, although Screen Flipper works only if it's at the root level in your System Folder (in other words, don't let System 7 stash it in the Control Panels or Extensions folder). Switch-A-Roo, Screen Flipper, and PixelFlipper are available from on-line services such as ZiffNet/Mac and other shareware sources.

At the high end, we have the commercial products HAND-Off II, from Connectix (2655 Campus Drive, San Mateo, CA 94403; [800] 950-5880 or [415] 571-5195), and MultiMaster, part of Now Utilities, from Now Software (520 S.W. Harrison Street, Suite 435, Portland, OR 97209; [800] 237-3611 or [503] 274-2800). Both are file launchers and the only products that let you set pixel depth on an application-by-application basis (see Figure 1). So, for example, if you always want Apache Strike to run in the black-and-white mode (you do — it doesn't work in any other), just tell HAND-Off II or MultiMaster. Then every time you launch Apache Strike, using HAND-Off II or MultiMaster, your monitor will automatically switch into the black-and-white mode.

### \* ... But Were Afraid to Ask

Want to know why neither of us here at Help Folder have ever been asked to work on a film with Madonna or Billy Crystal or someone? I'll tell you why — Hollywood power brokers read this column, but their eyes glaze over at this talk of system-extension conflicts, bus errors, system heaps, and all that other heavy, technical junk. So unless we start getting some simpler questions around here, Ovitz, Katzenberg, et al. won't be bellowing, "Get me those Help Folder guys!!!" at their secretaries anytime soon.

If you're an actor or actress unwilling to sacrifice your career to further mine, I'll just attribute your question to a Carolinian ruler of France, chosen completely at random. So come on, throw me a bone; I'd really love the opportunity to work with Cher.

**Q.** I have a feeling about where this question is going to go, but I'll ask it anyway, because I know you won't use my real name: Is it safe for me to turn off my Macintosh? I've had my Mac Classic for only about a week now, but I've kept it on the whole time, because I'm scared I'll lose all my files. Unless I have some solar panels installed, I think I need to know the answer to this.

Charles IV (the Simple)  
898 — 922 A.D.

**Andy:** First off, Charles, let me salute your courage in coming forward. Much like "Even if I unplug it before I try to pry that bagel out with a fork, will my toaster 'remember' about being plugged in and electrocute me anyway?", this is

a question most folks have thought about at some early stage but never actually voiced. Bravo.

Information sits in two places in a computer. You've got your system memory (RAM), and you've got your disk memory. System memory is in SIMM modules in your Mac, but information stays in place only while there's current flowing. Disk memory (a floppy-disk drive, a hard-disk drive, a tape drive, a cartridge drive) stores info by recording patterns of magnetism on the disk, cartridge, or whatever. It's a slower process, but the selling point is that the info will stay put whether current's flowing or not.

So what happens when you turn off your Mac? Everything in system memory is erased, but stuff you saved onto your hard disk stays put. So, if that word-processing document you're working on is of any importance, you'd better save it to disk. Save early and save often too; you never know when a system crash or a power fluctuation will force you to switch off your Mac.

Two Parthian shots. First, never just cut the power to your Mac; always do a civilized shutdown from the Finder's Special menu first, or you may find things in considerable disarray when you fire your pal back up. Second, good move leaving your Classic on for a solid week; do that with all the electronic equipment you buy. If there's a defect or a weak solder joint or something, it'll force the defect to surface while the unit's still under warranty.





**Figure 1:** A couple of commercial utilities — MultiMaster, from Now Software (shown here), and HAND-Off II, from Connectix — save you from making repeated trips to the Monitors control panel by selecting the correct color depth when your programs are launched.

**Andy:** The cool thing about HAND-Off II and MultiMaster is that they can control other aspects of your Mac's environment too, such as cranking the volume way up when they launch a game and then bumping it back down again when you open up your spreadsheet program.

### Communication Gap

**Q.** Last week I installed ClarisWorks, which uses Apple's Communication Toolbox for its telecommunications module. I dutifully installed the Comm Toolbox as instructed, but now I'm sure I won't be using that module of the program at all.

I want to remove the Comm Toolbox system extension and reclaim the system memory it's taking up, but I can't find it anywhere in my System Folder. The CTB icon appears in my Welcome to Macintosh screen, so I know it's in there *somewhere!* I give up... where is it? Or is this just Apple's way of forcing me to buy more memory?

Marty Oaklin  
Manchester, NH

**Andy:** You obviously haven't read Apple's most recent marketing plan, Marty; getting users to buy more memory is passé. The high-scoring idea now is to have every new Mac use a RAM

configuration more improbable than the last one's. How else to explain PowerBook RAM, Portable RAM, IIfx RAM, and VRAM?

But enough conspiracy theories. The thing is, the Comm Toolbox code looks like a system extension and quacks like a system extension but it isn't a file in the System Folder — the Installer program plants that sucker right inside the System file itself. The only really safe way to get rid of the Comm Toolbox is to have the Installer rip it out for you. Launch the ClarisWorks Installer, choose the Customize option, select Communication Toolbox, and hold down the Option key. The Install button in the upper right corner should change to Remove (see Figure 2). Click on that button, and within seconds, the CTB's unholy reign of terror will be at an end. (By the way, this technique works for most Installer scripts.) Your only other option is to replace the whole System file with a virgin copy, but keep in mind that you'll also lose whatever else has been installed in there.

You didn't mention why you didn't want to use the CTB, but whatever the reason, I don't blame you. Controlling a modem via the Comm Toolbox is like drinking a Diet Coke; it quenches your basic

thirst, but it's hardly the Real Thing. Here are two things you can do for better overall modem control. First, use the serial-connection tool, which was probably included with your connectivity software, for Mac-to-modem connections. You'll have a terminal window and active link to your modem open at all times, through which you can dial, set parameters, monitor the status of calls, and so on. Second, access the Hayes BBS, at (800) 874-2937, and download a free (but *not* public-domain!) copy of the excellent Hayes Modem Tool. If the only thing the Hayes tool gave you were the ability to take full advantage of V.42bis and MNP data compression, that'd be quite enough, but there's a bonus: When it's dialing a number, it shows those pictures of Mr. Happy Phone that Smartcom users already know and love. Definitely worth a download.

### Disappearing Disks

**Q.** As an editor of a bi-weekly magazine that uses stories from free-lance writers, I have to pop floppy disks into my Mac all the time. When I'm using my word-processing application, Microsoft Works, I pop them in and copy the story, but after the floppy is long gone, I'm plagued by

requests for the disk. The Mac is frozen until I produce the floppy it craves, and in the absence of the disk, the only way out is to cut the power supply and reboot.

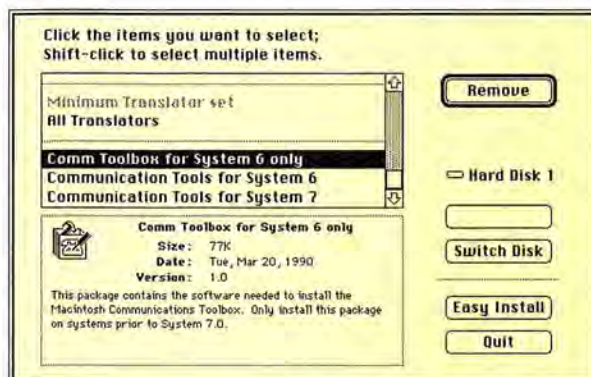
There must be a better way.  
Hawes C. Spencer  
Charlottesville, VA

**Bob:** There is, and here it is: Type Command-period. If the alert box doesn't go away, type it again. You may have to do it several times, but it will usually end the plague.

Command-period is versatile and has lots of other uses — think of it as yelling "Halt!" at your Mac. If you double-click on an icon and then change your mind, Command-period will abort its launch. Command-period also stops most print jobs.

In your case, you won't have to use it very often if you take the following precautions: When writers bring you stories on-disk, copy their stories to your hard disk and then eject and *dismount* their disk.

There is a difference between ejecting and dismounting. If you eject a disk (using Command-Shift-1, Command-Shift-2, Command-E, or Eject Disk on the Special menu), the disk's dimmed icon remains on the desktop. Dismounting removes the dimmed icon and makes your Mac forget



**Figure 2:** You can use an Installer program to deinstall a file too — just hold down the Option key. In some cases, such as with Apple's Comm Toolbox (above), it's the only quick way to get rid of a file that's stored *within* the System file.



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## POWER TOOLS HELP FOLDER

completely about that disk.

Here are a couple of ways (besides dragging the disk's icon to the Trash) to dismount disks under System 6 and System 7:

System 6:

1. Hold down the Option key, and choose Eject from the File menu.

2. Use the Command-key shortcut Command-Option-E.

System 7:

1. Choose Put Away from the File menu.

2. Use the Command-key shortcut Command-Y.

**Andy:** Allocating more memory to the Finder (in its Get Info box) will cut down these absurd Finder requests a mite, but on the whole, it's more useful to lock your disks before inserting them. More often than not, the Finder wants to see a disk again only so it can update its invisible Just There to Cause Trouble file, but if the disk's been write-protected, the Finder will leave it alone.

**Bob:** Unfortunately, System 7 doesn't let you allocate more memory to the Finder. The workaround: Boot from a System 6 startup disk before you access Get Info in your System 7 Finder.

### Internet Trifecta

**Q.** As a lifelong cheapskate, I was happy to read your information on how to send mail to someone on CompuServe via the Internet (Help Folder, March '92, page 227). Can you send mail to someone on AppleLink the same way?

Pamela Tyree  
Via Internet

**Q.** Does Apple offer tech support and/or software via the Internet?

Pat Pruyne  
Via Internet

**Q.** What is the Internet? I've heard a lot about it, and I know it's supposed to be an on-line service, but I have no idea

where it is or what's so good about it (as opposed to CompuServe). Why would I want to sign up for it?

Robert Jaegger  
Via ZiffNet/Mac

**Andy:** The Internet is sort of an existential concept. It's a worldwide network of almost half a million computers belonging to the military, institutes of higher and lower learning, research organizations, and corporations big and small. The Internet is not a destination; it's a means by which you get to your destination. To access it, you log on to a nearby computer (an Internet *site* or *host*) that's been linked into the net and then run a set of programs for processing mail and files.

CompuServe and America Online use one huge central computer to which everyone logs on to leave and pick up mail and files. But on the Internet, mail and files move from computer to computer until they reach their final destination. The Internet functions like one massive living, breathing organism. If it were any more monstrous, it'd battle Godzilla in Tokyo Bay.

But despite its size, many of the services you'd expect from a commercial on-line entity are available via the Internet. Users send personal mail by sending a message to someone's individual Internet address. It also has more than 2,000 "newsgroups," places where users can post messages for all to see. My favorite is alt.fan.dan-quayle, which specializes in recent dopey quotes from our VP.

You can also download free or almost free software; in fact, you could spend the rest of your life downloading stuff and still get just a fraction of the files that interest you. Here's where the lack of one central computer becomes a problem. To find a good game or two on CompuServe, you log on, go to the MACFUN



forum, get a list of files, and download what tickles your fancy. On the Internet, you must first search a list of computer systems for one that (a) has a whole lot of Mac software and (b) allows open access for total strangers such as you, and then you have to tell your local Internet host to open a connection. Only then can you start looking for files. So downloading isn't generally the most popular aspect of the Internet. It's not so bad once you get into it, but much as with a prom dress, getting into it can be a long, harsh struggle.

To answer your question, Pat, Apple has the most-studied Internet connections. The company doesn't have any kind of electronic help line (that's what Bob and I are here for, after all), but it does have a jolly useful Internet-accessible file

area open to the public. System software, source code, demo files, stacks, hacks, and official technical notes (real soon now) are available from Apple's FTP (file-transfer protocol) site. To connect to it, log on to your local Internet host and type **ftp ftp.apple.com** (note that this command may vary from system to system). Enter **Anonymous** when Apple's computer asks for your user name and use your Internet address for the password, and you'll be in like Flynn. You can also send mail to any AppleLink user via the Internet by addressing your message to **user@applelink.apple.com**, where "user" is the dude's AppleLink ID.

I've saved the best part for last: Using the Internet is *free*. There's no sign-up fee, no

monthly charge, no per-message charge, no hourly rate. Sometimes you have to pay a modest fee to your local Internet host computer (on my system, it's a whole dollar an hour), but using the net itself is free. If you're in school or work for a big corporation or the government, the big computer you have to deal with every day is probably on the Internet. Ask your system manager for details on how to access Internet services. If you aren't and don't feel like a career change this late in life, fret not; many companies rent time on their computers to folks who want Internet access. Most popular are sites set up as PAU (public-access UNIX) systems. Call up a local bulletin-board system, and ask around for the number of a PAU in your area.

### What's the Score?

**Q.** My word processor (WriteNow) can do just about anything except create a double-ruled underscore. There is a very strong tradition of double-underscoring totals in accounting statements, so this is (believe it or not) a significant problem for me. Is there a word processor that does a double underscore?

Eric Noreen  
Fontainebleau Cedex  
France

**Bob:** By the time you read this, WriteNow 3.0 should be available, from T/Maker (1390 Villa Street, Mountain View, CA 94041; [800] 688-2850 or [415] 962-0195). It supports double as well as gray, dashed, dotted, charcoal, and thick underscores. With upgrades priced at a mere \$49.95, you can hardly go wrong. ☺

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Working with scanned or high resolution images? **Color Central** is the OPI/DCS Image Print Server, an enhanced version of Print Central. Color Central permits you to place a low resolution image in a page layout, while the high resolution or separated version is stored at the print server. When the Mac prints to Color Central it is freed in seconds rather than the hours associated with printing high resolution graphics. When the job is sent to the printer, Color Central automatically inserts the images on the fly!

### It should have been fast & compatible...

|                         |                                          |
|-------------------------|------------------------------------------|
| Photoshop (2 Meg Image) | 27% faster!                              |
| Xpress (2 Pages)        | 12% faster!                              |
| PageMaker               | AppleShare doesn't work with PageMaker!! |

### It should have been full featured...

|                           | Print Central | Apple PS |
|---------------------------|---------------|----------|
| Runs on a Macintosh       | ✓             | ✓        |
| Printer Load Balancing    | ✓             |          |
| Works with Large Graphics | ✓             |          |
| Authorized User List      | ✓             |          |
| Remote Status & Control   | ✓             |          |
| Configures Printer        | ✓             |          |
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# This Month on ZiffNet/Mac

## ZMAC UTILITY

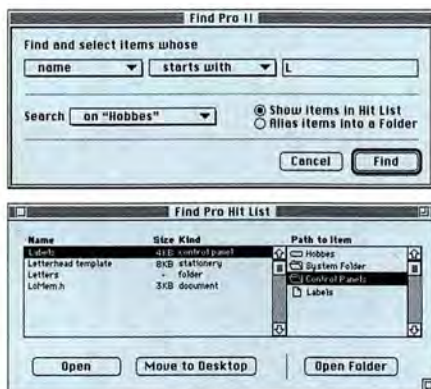
Everyone misplaces files on a hard disk now and then. If you're a System 6 user, you probably resort to Find File, the DA that tells you where files are (but doesn't let you launch them directly). If you have System 7, you can rely on the Find command to both locate and launch files, but if you don't know the exact name of the file, you might have to keep selecting Find Again or else use the unwieldy All at Once option. Now System 7 users can have the best of both Systems with Find Pro II, the latest Zmac utility.

Find Pro II (at right) is a finding alternative that delivers a list of files that fit the search criterion. Double-click on any file in the list to launch it, as you would from the Finder. You can also instantly create aliases for the found files — not surprising, because Find Pro II comes from Bill Monk, the author of *MacUser's* most popular utility, Alias Assassin. Find Pro II is available exclusively in the MacUser Forum on ZiffNet/Mac. Look for it in Library 3 (Utilities); the filename is FINDPR.CPT.

By Ben Templin

## The Great Database Debate

Deciding which database program you should use is tougher than picking a presidential candidate — and you may have to live with the results longer too. Mac users can choose from among four full-featured relational-database-management packages, and each one has its passionate adherents (see "Database Strategies: Relational Databases," in this issue). Join us in the MacUser Forum this month in a database free-for-all in which experts and users alike debate the relative merits of their favorite database packages. Check out Message Section 5 (Labs & NetWorkShop) for the Database Debate thread.



Find Pro II combines the superior abilities of System 7's Find command (top) with the superior interface of System 6's Find DA (bottom).

## Recent Uploads

Utilities are usually the most compelling pieces of shareware. Here's a batch of new uploads as well as updates to existing utilities. To make locating the file easier, the CompuServe filenames are in parentheses. All the files can be found in the Download & Support Forum (GO ZMC:DOWNTECH).

**Apollo v.0.7b1** (APOLLO.CPT) is an application launcher modeled on such commercial programs as On Cue and HAND-Off. System 7-compatible. Freeware.

**Folder Icon Maker 1.0** (FOLMAK.CPT) creates custom icons for folders. System 7 required. Freeware.

**Helium v.2.1.1** (HELIUM.SIT) is a small control panel that lets you access Balloon Help through hot keys. System 7 required. Shareware, \$7.

**Notify 2.1.2** (NOTIFY.CPT) is a simple control panel that uses the Notification Manager to post alerts at user-specified times. Better than Apple's Alarm Clock but not quite a full-blown alarm program. Freeware.

**Protect It** (PROTEC.CPT) is a simple security utility that lets you protect documents and applications by making it impossible to copy them to another hard disk or a floppy disk. Shareware, \$15.

**MountImage 1.1b3** (MOUNTI.CPT) is a control-panel/extension combo that fools the Mac into thinking that DiskCopy (Apple's format for delivering system files on-line) image files are really disks you can mount on the desktop. It makes dealing with these files much easier. Freeware.

## Zmac Tip of the Month: Terminal Editing

Editing a message on CompuServe with a terminal-emulation program can be a real chore. As soon as you enter a carriage return, you can't go back to that line by pointing and clicking. The text has already been sent over the phone lines to the mainframe. But you can still edit the message by using two easy-to-remember commands. (Note: These commands work only when your options for the editor are set *not* to use line numbers.) First, on a separate line, type  
`/pos1`  
 This is a positioning command that puts you at the first line of the message. Then, on a separate line, type  
`/del99`

This command deletes 99 lines in the message. You can delete as many or as few lines as you want.

However, by starting over, you can copy and paste from your terminal program's buffer in order to make the editing changes you want. If you want to see the changes you've made, use the command

`/type`  
 which lists the entire message on your screen. There's another way to avoid this whole problem, and that's to get one of the Mac interfaces for CIS, either CIM or Navigator. Then you can point and click throughout a message before posting it on-line.





## Mac Quadra System

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| ColorPage E16        | \$995  |
| E-Machines TX16      | \$1750 |
| E-Machines T19/8 Bit |        |

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24-bit Accelerated NuBus interface card for the Apple II and 13-inch displays. ColorPage E16, and Mac compatible displays with 640 x 480 resolutions. And like all E-Machines cards; On board acceleration, virtual screens, and pan and zoom.

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| Futura MX                      | \$1399 |
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| ColorLink SX/T                 | \$1050 |
| E-Machines TXsi and T19/si     | \$949  |
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HM1.2/15

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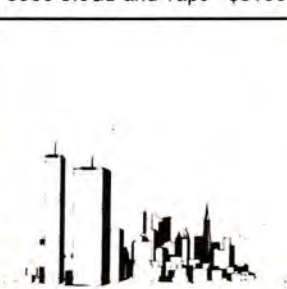
"The superior driver software of the HM 1.2/15 speeds it past the other Wren 7 based drives."

"Despite its bargain price, it ranked near the top in all performance tests." *MacUser July 1991*

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| 120MB/15ms  | \$344  | \$434  |
| 213MB/15ms  | \$584  | \$654  |
| 340MB/13ms  | \$914  | \$984  |
| 535MB/12ms  | \$1299 | \$1379 |
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| 1500MB/13ms | \$2474 | \$2644 |

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|--------------------|--------|
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| Cartridges         | \$249  |

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|------------|--------|--------|
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| 105MB/10ms | \$344  | \$414  |
| 120MB/10ms | \$344  | \$414  |
| 210MB/10ms | \$614  | \$684  |
| 240MB/10ms | \$638  | \$738  |
| 425MB/13ms | \$1174 | \$1244 |

## Seagate

|             | Intl   | Extl   |
|-------------|--------|--------|
| 49MB/28ms   | \$234  | \$304  |
| 426MB/14ms  | \$1269 | \$1329 |
| 676MB/12ms  | \$1695 | \$1845 |
| 1020MB/15ms | \$1924 | \$2079 |
| 1420MB/15ms | \$2424 | \$2574 |
| 1352MB/12ms | \$2899 | \$3049 |

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|------------|--------|--------|
| 40MB/25ms  | \$234  | \$304  |
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| 360MB/12ms | \$920  | \$1020 |
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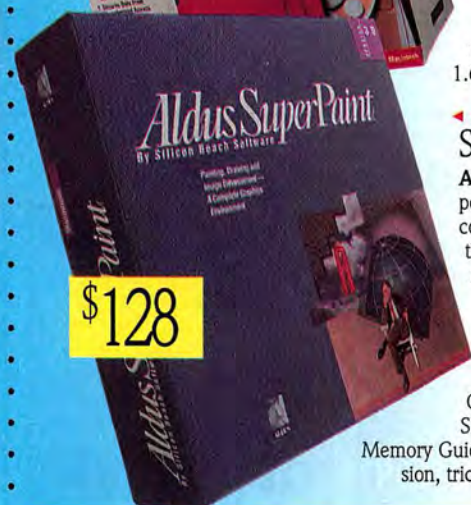
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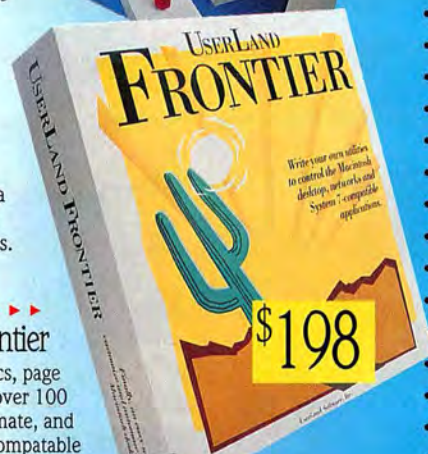
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| Color Displays    |       |
| 7 ColorPage E16   | 1045. |
| 7 ColorPage T16   | 1398. |
| 7 ColorPage T16II | 1698. |

## Color Interface Cards

|                  |       |
|------------------|-------|
| 7 DoubleColor    | 328.  |
| 7 DoubleColor LC | 395.  |
| 7 Futura EX      | 568.  |
| 7 Futura SX      | 878.  |
| 7 Futura SX/8    | 698.  |
| 7 Futura MX      | 1298. |

## Ethernet-24-Bit Color

|                  |      |
|------------------|------|
| 7 ColorLink EX/T | 658. |
| 7 ColorLink SX/T | 998. |

## Everex

|                        |      |
|------------------------|------|
| 7 EMAC 150-MB Tape BU. | 678. |
|------------------------|------|

## Farallon

|                    |      |
|--------------------|------|
| 7 Connectors       | 29.  |
| 7 Connector (10PK) | 195. |

## Global Village

|                             |      |
|-----------------------------|------|
| TelePort                    |      |
| 7 2400 w/MNP5               | 128. |
| 7 Fax 9600 (Send Only)      | 179. |
| 7 Full Fax Send/Receive     | 228. |
| 7 PowerPort/IV.32 PowerBook | 488. |

## Harris Labs

|                      |      |
|----------------------|------|
| 7 Performer          |      |
| 7 16 Mhz Accel       | 239. |
| 7 16 Mhz Accel w/FPU | 318. |

## Logiccode

|                         |      |
|-------------------------|------|
| Fax Modems-Send/Receive |      |
| 7 9624                  | 148. |
| 7 9624 V.42bis          | 198. |
| 7 9696 V.42bis          | 398. |
| 7 14,400 V.42bis        | 518. |

## Quicktel Modems

|                                      |  |
|--------------------------------------|--|
| 7 14,400 V.32bis, V.42bis, MNP5 488. |  |
|--------------------------------------|--|

## Micron

|                       |      |
|-----------------------|------|
| 7 XCEED Gray-Scale 30 | 78.  |
| 7 XCEED Color 30      | 279. |
| 7 XCEED MacroColor II | 469. |
| 7 XCEED MacroColor 30 | 488. |

## Microtek

|                     |       |
|---------------------|-------|
| 7 ScanMaker 600GS   | 848.  |
| 7 ScanMaker 600ZS   | 1398. |
| 7 TrueLaser Printer | 1398. |

## RasterOps

|                |       |
|----------------|-------|
| Color Monitors |       |
| 7 16"          | 1288. |
| 7 19" Hitachi  | 1698. |

## 24-Bit Color Video 13", 19", 21"

|         |       |
|---------|-------|
| 7 24MX  | 1288. |
| 7 24MXQ | 1288. |
| 7 24SX  | 648.  |
| 7 24XLI | 2148. |

## PaintBoard 24

|                 |       |
|-----------------|-------|
| 7 PaintBoard 24 | 1698. |
|-----------------|-------|

## Monochrome/Grayscale Monitors

|                       |      |
|-----------------------|------|
| 7 19" Mono/Gray-Scale | 858. |
|-----------------------|------|

## Video Boards-Monochrome

|               |      |
|---------------|------|
| 7 ClearVue/XL | 348. |
|---------------|------|

## Video & Multi Media

|                              |       |
|------------------------------|-------|
| 7 Expresso Pers. Slide Scan. | 698.  |
| 7 24STV                      | 828.  |
| 7 MediaTime                  | 1698. |
| 7 VideoTime                  | 1288. |
| 7 Video Expander             | 498.  |

## Seiko

|                               |      |
|-------------------------------|------|
| 7 Seiko CM 1445 14" Trinitron | 598. |
|-------------------------------|------|

## Shiva

|              |       |
|--------------|-------|
| 7 Ethergate  | 1289. |
| 7 FastPath 5 | 1795. |
| 7 NetBridge  | 398.  |

## SIMM

|                          |      |
|--------------------------|------|
| PowerBook Memory 140/170 |      |
| 7 4-MB Pseudo-Static     | 358. |
| 7 6-MB Pseudo-Static     | 458. |

## Single Inline Memory Modules

|                         |      |
|-------------------------|------|
| 7 SIMM 1-MB 80ns        | 37.  |
| 7 SIMM 2-MB 80ns        | 75.  |
| 7 SIMM 4-MB 80ns        | 128. |
| 7 SIMM FX 4-MB 80ns     | 148. |
| 7 SIMM FX/NTX 1-MB 80ns | 42.  |

## SuperMac

|                              |       |
|------------------------------|-------|
| 7 Monochrome Card            | 358.  |
| 7 PowerBook Display Expander | 538.  |
| 7 SuperMatch Calibrator      | 538.  |
| 8 Bit Display Cards          |       |
| 7 Spectrum/8 LC              | 538.  |
| 7 Spectrum/8 Series III      | 538.  |
| 7 Spectrum/8 si              | 538.  |
| 24 Bit Display Cards         |       |
| 7 ColorCard/24               | 538.  |
| 7 Spectrum/24                | 1078. |
| 7 Spectrum/24 Series III     | 1528. |
| 7 Spectrum/8•24 PDQ          | 898.  |
| 7 Spectrum/8•24 PDQ si       | 898.  |

## Monochrome/Grayscale Monitors

|                         |       |
|-------------------------|-------|
| 7 Platinum 19"          | 1044. |
| 7 Platinum 21" Two-Page | 1138. |

## SuperMatch Color Monitors

|                           |       |
|---------------------------|-------|
| 7 17" Multimode Color     | 1138. |
| 7 20" Color               | 1898. |
| 7 20" Dual-Mode Trinitron | 2698. |

## Multimedia/Video Spigot

|                            |       |
|----------------------------|-------|
| 7 Spigot & Sound NuBus     | 798.  |
| 7 Spigot & Sound Pro NuBus | 1698. |
| 7 Spigot LC                | 538.  |
| 7 Spigot NuBus             | 538.  |
| 7 Spigot Pro NuBus         | 1438. |
| 7 Spigot si                | 538.  |
| 7 Spigot Pro si            | 1438. |
| 7 SuperSqueeze             | 798.  |

## Supra Corp.

|                        |      |
|------------------------|------|
| Supra FaxModem         |      |
| 7 FaxModem Plus MacPac | 198. |
| 7 FaxModem V.32        | 328. |
| 7 FaxModem V.32bis     | 378. |

## Supra Modem

|                              |      |
|------------------------------|------|
| 7 2400                       | 109. |
| 7 MacPac 2400                | 138. |
| 7 MacPac 2400 w/MNP 5        | 198. |
| 7 Plus 2400 (MNP5, V.42 BIS) | 158. |

## Thunderware

|                         |      |
|-------------------------|------|
| 7 LightningScan Pro 256 | 489. |
|-------------------------|------|

## UMAX Technologies Inc.

|          |       |
|----------|-------|
| 7 UC 630 | 1398. |
|----------|-------|

## Wacom

|                                  |      |
|----------------------------------|------|
| 12X12 Digitizers Cordless Stylus |      |
| 7 Standard                       | 758. |
| 7 Electro Static                 | 836. |

## 6 X 9 Digitizers Cordless Stylus

|            |      |
|------------|------|
| 7 Standard | 518. |
|------------|------|

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|----------------------|-------|
| 7 DP+ 52-MB Quantum  | 338.  |
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| 7 DP+ 240-MB Quantum | 828.  |
| 7 DP+ 425-MB Quantum | 1398. |

### Internal Hard Drives

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|----------------------|-------|
| 7 DP+ 52-MB Quantum  | 268.  |
| 7 DP+ 105-MB Quantum | 398.  |
| 7 DP+ 240-MB Quantum | 758.  |
| 7 DP+ 425-MB Quantum | 1298. |

### Removable Syquest Hard Drives

|                         |      |
|-------------------------|------|
| 7 DP+ 44-MB w/cartridge | 508. |
| 7 DP+ 88-MB w/cartridge | 698. |
| 7 44-MB Cartridges      | 68.  |
| 7 88-MB Cartridges      | 107. |

### Accessories

|                             |     |
|-----------------------------|-----|
| Mounting Bracket (Ilic/Ilo) | 19. |
| Case Opener/Torex Kit       | 8.  |

## FWB Software

|                  |      |
|------------------|------|
| PowerBook Hammer |      |
| 7 Hammer PB60    | 638. |
| 7 Hammer PB80    | 788. |
| 7 Hammer PB120   | 868. |

## PocketHammer

|          |       |
|----------|-------|
| 7 50-MB  | 568.  |
| 7 100-MB | 768.  |
| 7 200-MB | 1198. |

## Iomega

|                          |      |
|--------------------------|------|
| Bernoulli                |      |
| 7 Transportable 90-MB    | 798. |
| 7 Kit w/MacTools Deluxe  | 38.  |
| 7 Kit w/Retrospect       | 98.  |
| 7 Single 90-MB Cartridge | 139. |
| 7 Tri-Pack 90-MB         | 408. |

## Quantum Drives

|                       |       |
|-----------------------|-------|
| 7 ProDrive LPS 52-MB  | 248.  |
| 7 ProDrive LPS 105-MB | 378.  |
| 7 ProDrive 240-MB     | 738.  |
| 7 ProDrive 425-MB     | 1278. |

## Seagate Technology

|                        |       |
|------------------------|-------|
| Full Height Drive      |       |
| 7 WrenRunner II 676-MB | 1998. |

## MUSIC

### Ars Nova

|                       |     |
|-----------------------|-----|
| 7 Practica Musica 2.3 | 68. |
|-----------------------|-----|

### Opcode Systems

|                              |      |
|------------------------------|------|
| 7 Book Of MIDI               | 28.  |
| 7 EZ Music Starter Kit       | 155. |
| 7 EZVision                   | 98.  |
| 7 Galaxy Universal Librarian | 188. |
| 7 MIDI Translator            | 42.  |
| 7 Studio 3 MIDI/Smpie Intfc. | 288. |
| 7 Vision                     | 368. |

### Passport Designs

|                  |     |
|------------------|-----|
| 7 MIDI Interface | 78. |
|------------------|-----|

## PROGRAMMING

### Bowers Development

|                |      |
|----------------|------|
| 7 AppMaker 1.5 | 214. |
|----------------|------|

### Microsoft

|                  |     |
|------------------|-----|
| 7 QuickBASIC 1.0 | 68. |
|------------------|-----|

### Symantec

|                      |      |
|----------------------|------|
| 7 Just Enough Pascal | 49.  |
| 7 THINK C 5.0        | 198. |
| 7 THINK Pascal 4.0   | 159. |
| 7 THINK Reference    | 69.  |

### TGS Systems

|                |      |
|----------------|------|
| 7 Program V2.5 | 298. |
|----------------|------|

### Zedcor Inc

|              |     |
|--------------|-----|
| 7 ZBasic 5.0 | 95. |
|--------------|-----|

## BOOKS

### Addison Wesley

|                                 |     |
|---------------------------------|-----|
| Mac C Prog Guide MPW Vol 1 ...  | 19. |
| 7 ResEdit Complete w/ResEdit .. | 23. |



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| Math FPU      | 68882 Included      | \$130 Extra    | Included           |
| PMMU          | Built into 68030    | \$200 Extra    | Included           |
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| Monitor       | 19" 1152 x 876      | 19" 1024 x 768 | \$800-\$1500 Extra |
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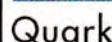
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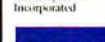
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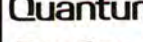
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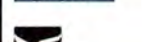
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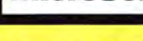
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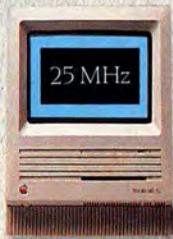
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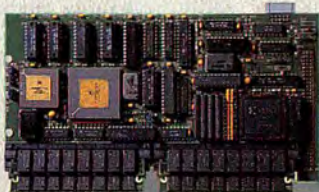
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# Quantum

| Capacity |          | Internal | External                                           |
|----------|----------|----------|----------------------------------------------------|
| 50mb     | LPS      | \$219    | \$279                                              |
| 80mb     | GO DRIVE | \$489    | <b>Internal Only. Perfect<br/>for Powerbooks!!</b> |
| 105mb    | LPS      | \$335    |                                                    |
| 120mb    | LPS      | \$399    | \$459                                              |
| 240mb    | LPS      | \$669    | \$769                                              |
| 425mb    | PRO      | \$1139   | \$1199                                             |

Quantum drives carry a TWO year warranty. 3.5" Half Height drives are the PRO series. 3.5" Low Profile drives are the LPS series. \*3.5" Low Profile drives for the Mac Classic, LC and IIs.

\*\*Perfect for Powerbooks; Dealer installation recommended. All internal drives include a mounting kit. Externals manufactured by ClubMac. Quadra 900 bracket add \$10

## Seagate

| Capacity | Access | Internal | External |
|----------|--------|----------|----------|
| 330mb    | 10.7ms | \$1249   | \$1349   |
| 420mb    | 14ms   | \$1199   | \$1259   |
| 645mb    | 11.9ms | \$1615   | \$1715   |
| 645mb    | 15.5ms | \$1285   | \$1385   |
| 1.0GIG   | 15ms   | \$1819   | \$1919   |
| 1.4GIG   | 15ms   | \$2295   | \$2395   |
| 1.4GIG   | 13ms   | \$2999   | \$3099   |

**New Item** Elite Drive

Seagate drives carry a ONE year warranty that can be extended up to a total of FIVE years. All internals include mounting kits. Quadra 900 bracket add \$10



## FUJITSU

| Capacity | Access | Internal | External |
|----------|--------|----------|----------|
| 330mb    | 9ms    | \$1119   | \$1179   |
| 425mb    | 9ms    | \$1189   | \$1249   |
| 520mb    | 9ms    | \$1249   | \$1309   |
| 345mb    | 16ms   | \$1189   | \$1289   |
| 645mb    | 16ms   | \$1259   | \$1359   |
| 1.0GIG   | 14.5ms | \$1899   | \$1999   |
| 2.0GIG   | 11ms   | \$3315   | \$3415   |

Fujitsu drives carry a FIVE year warranty.

All internal drives include a mounting kit. Quadra 900 bracket add \$10



## SyQuest

Two Year Warranty on drive.  
One Year Warranty on cartridges.

|                            |                                     |      |        |
|----------------------------|-------------------------------------|------|--------|
| 44mb                       | 5.25" Removable Disk Drive          | 20ms | \$435  |
| 88mb                       | 5.25" Removable Disk Drive          | 20ms | \$599  |
| Dual 44mb                  | Includes (2) 44mb and ONE cartridge |      | \$819  |
| Dual 88mb                  | Includes (2) 88mb and ONE cartridge |      | \$1099 |
| 44mb/88mb Combo            |                                     |      | \$999  |
| 44mb or 88mb w/ Hard Drive |                                     |      | \$Call |

44mb Cartridge

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88mb Cartridge

**\$99**



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| Capacity | Access | Internal | External |
|----------|--------|----------|----------|
| 80mb     | 17ms   | \$289    | \$349    |
| 120mb    | 15ms   | \$349    | \$409    |
| 207mb    | 13ms   | \$595    | \$655    |
| 340mb    | 14.5ms | \$949    | \$1009   |
| 535mb    | 12ms   | \$1365   | \$1425   |
| 645mb†   | 14ms   | \$1389   | \$1489   |
| 1.0GIG†  | 13ms   | \$1829   | \$1929   |
| 1.4GIG†  | 13ms   | \$2429   | \$2529   |

All internals include a mounting kit. Quadra 900 bracket add \$10

Maxtor drives carry a ONE or TWO year warranty depending on model.

†These drives have a TWO year warranty, and only fit inside Large Macs.



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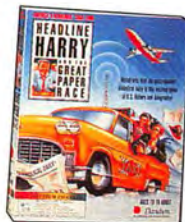
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| MB's               | Mechanism  | Access | Internal | External |
|--------------------|------------|--------|----------|----------|
| 42                 | Seagate    | 28ms   | \$219    | \$249    |
| 52 <sup>LPS</sup>  | Quantum    | 17     | \$249    | \$299    |
| 80                 | Maxtor     | 19     | \$279    | \$339    |
| 105 <sup>LPS</sup> | Quantum    | 16     | \$349    | \$399    |
| 210                | Maxtor     | 15     | \$599    | \$679    |
| 210                | Quantum    | 16     | \$629    | \$689    |
| 320 <sup>HH</sup>  | Maxtor     | 14     | \$999    | \$1049   |
| 320 <sup>HH</sup>  | Micropolis | 14     | NA       | \$1199   |
| 520                | Fujitsu    | 12     | \$1099   | \$1149   |
| 660 <sup>HH</sup>  | Micropolis | 16     | NA       | \$1599   |
| 1050 <sup>HH</sup> | Micropolis | 14     | NA       | \$2199   |
| 1050 <sup>HH</sup> | Seagate    | 14     | NA       | \$2199   |
| 1079 <sup>HH</sup> | Fujitsu    | 12     | \$1999   | \$2099   |
| 1346 <sup>HH</sup> | Micropolis | 14     | NA       | \$2699   |

## REMOVABLE

|                                                      |       |
|------------------------------------------------------|-------|
| *** SyQuest 44MB                                     | \$449 |
| 25ms. Includes 44MB cartridge. Extra Cartridge \$79  |       |
| *** SyQuest 88MB                                     | \$599 |
| 20ms. Includes 88MB cartridge. Extra Cartridge \$119 |       |

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|                                         |       |
|-----------------------------------------|-------|
| CD-ROM                                  | \$539 |
| 350ms. External. Uses Chinon mechanism. |       |

## TAPE BACKUP

|                                                      |        |
|------------------------------------------------------|--------|
| 2.0Gig 4mm DAT                                       | \$1495 |
| Includes Retrospect™ software, 1 cartridge & cables. |        |
| 250MB SANKYO                                         | \$549  |
| External. Includes tape & backup software.           |        |
| Extra Tape                                           | \$49   |

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|                |       |
|----------------|-------|
| 1MB (1x8-80ns) | \$39  |
| 4MB (4x8-80ns) | \$159 |

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- All 5.25" Drives are available in zero footprint external (including a 65 watt power supply, cables, and ext. terminators) or as internals for the Mac II, IIfx, and IIfx.

## Fujitsu Drives

|          |                                                                         | Internal | External |
|----------|-------------------------------------------------------------------------|----------|----------|
| 45 MB    | 3.5" Low Profile, Low Power 3yr warr, 50,000 MTBF                       | \$228    | \$288    |
| 90 MB    | 3.5" 3yr warr, 50,000 MTBF                                              | \$278    | \$348    |
| 135 MB   | 3.5" 3yr warr, 50,000 MTBF                                              | \$378    | \$448    |
| 185 MB   | 3.5" 3yr warr, 50,000 MTBF                                              | \$498    | \$568    |
| 330 MB   | 3.5" 5 yr warr., 200,000 MTBF*, 9ms Access                              | \$1128   | \$1198   |
| 425 MB   | 3.5" 5 yr warr., 200,000 MTBF* 9ms Access (MacWorlds Editors Choice!)   | \$1198   | \$1268   |
| 520 MB   | 3.5" 5 yr warr., 200,000 MTBF* 9ms Access (The Fastest 3.5" Available!) | \$1258   | \$1328   |
| 680 MB   | 5.25" 16ms 5 yr warr., 200,000 MTBF*                                    | \$1288   | \$1388   |
| 1.2 Gig  | 5.25" 11.5ms 5 yr warr., 200,000 MTBF* (MacWorlds Fastest Gig!)         | \$1948   | \$2028   |
| 2.06 Gig | 5.25" 11ms 5 yr warr., 200,000 MTBF* (5,400 RPM, Fast SCSI)             | \$3498   | \$3598   |

## Hitachi Drives

|         |                                        | Internal | External |
|---------|----------------------------------------|----------|----------|
| 425 MB  | 3.5" 5 yr warranty 13ms 150,000 MTBF*  | \$998    | \$1098   |
| 1.6 Gig | 5.25" 5 yr warranty 12ms 150,000 MTBF* | \$2698   | \$2798   |

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## Conner Drives

|          |          | Internal | External |
|----------|----------|----------|----------|
| C42 MB   | 3.5" LPS | \$238    | \$298    |
| C 85 MB  | 3.5" LPS | \$298    | \$378    |
| C 120 MB | 3.5" LPS | \$428    | \$498    |
| C 170 MB | 3.5" LPS | \$548    | \$598    |
| C 212 MB | 3.5" LPS | \$648    | \$728    |

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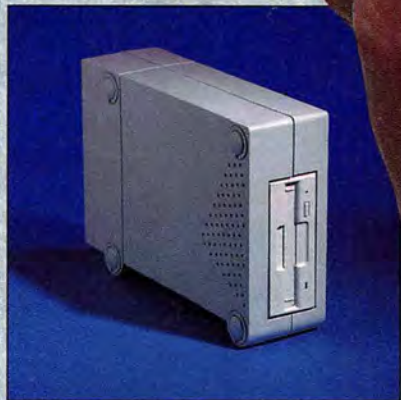
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Just look at the difference in the color scans. The single-pass Silverscanner has three separate noble gas-filled lamps for red, blue and green that are balanced so you get great scans the first time. With Silverscanner's built-in gamma correction, you get clean, bright scans with excellent detail in those hard-to-get areas that don't require difficult adjustment like other scanners. This can mean substantial time savings when every second counts.

## The shadow knows.

Do you want good shadow detail? Then compare the black and white scans. The Silverscanner can give you production quality gray-scale scans for magazines, newspapers and brochures.

## Lay it on the line.

When comparing line art, the Silverscanner really shines! At 1200 dpi you get what amounts to an *electronic stat*. The comparison is incomplete, however, because some scanners don't have hi-res capability (too bad). But even if you compare at 400 or 600 dpi, it's clear how much better the Silverscanner is, especially bundled with Color It!

La Cie Silverscanner with Color It

**\$1399**

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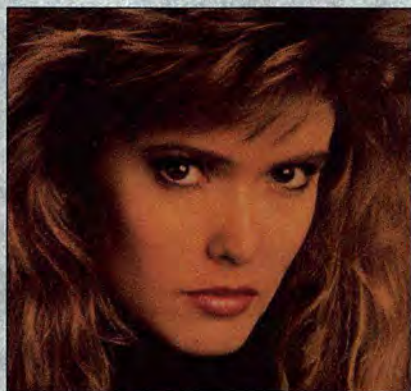


# of our image.



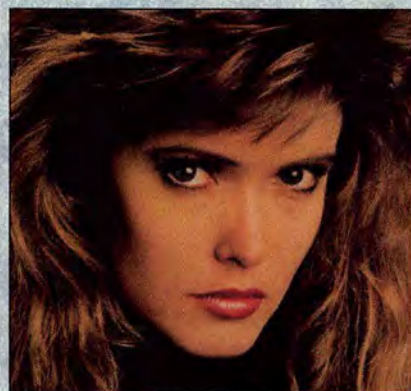
Microtek 600ZS

\$2,195\*



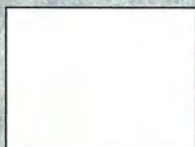
Howtek Scanmaster 3

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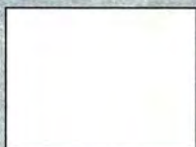
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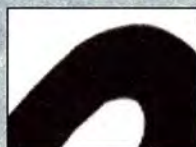
Microtek 600ZS

1200 dpi at 400%—n/a



Howtek Scanmaster 3

1200 dpi at 400%—n/a



La Cie Silverscanner

1200 dpi at 400%

All scans were done at default settings with no corrections. The color images were separated using Adobe Photoshop. The logo was scanned as grayscale and as line art. This entire ad was done on the Macintosh using Silverscanner, Photoshop, Quark XPress and a PostScript Imagesetter. The entire production cost was \$145.



La Cie Silverscanner

1200 dpi at 100%



## Software to die for!

We're proud of our image when it comes to quality software, too. La Cie has always had a reputation for powerful, well-written software. La Cie's exclusive plug-in modules for Photoshop, ColorStudio, Digital Darkroom, Enhance, ImageStudio and RagTime have been hailed as some of the best software ever written for flat-bed scanners. Enjoy features like fast dynamic **color** previews, independent color/brightness controls, nine scan modes, savable scan settings, color dropout, magnified previews, proof scans, 25% to 400% scaling in 1% steps, and 25 dpi to 1200 dpi in 1 dpi steps.

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La Cie Silverscanner with  
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La Cie is so proud of the Silverscanner, we used it to produce this ad. Not just the comparisons, **everything**. Call and order yours today.

*"The choice is clear . . . buy the La Cie Silverscanner."  
Macworld, June 1991*

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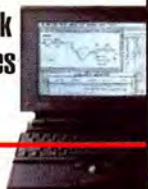
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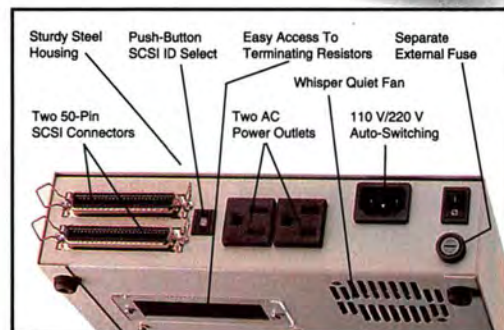
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| Macintosh Quadra 900            | 5375 |
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| Motorola PMMU 68852          | 79   |
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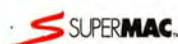
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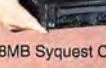
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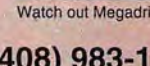
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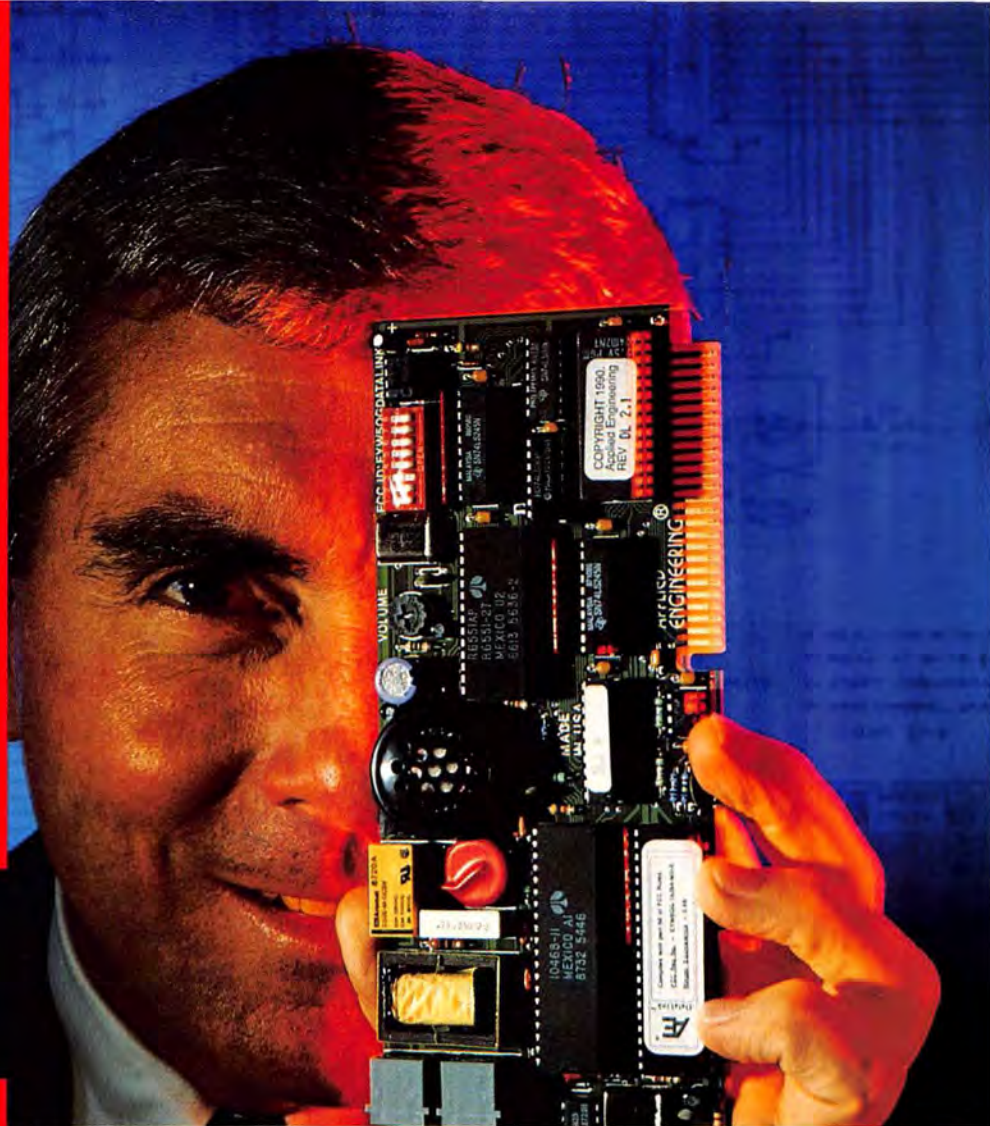
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"For marketing, we looked at the two monthlies — MacUser and Macworld — and tried both.

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     General Management    ☐ 04) Finance/Accounting  
☐ 02) MIS/DP, Communications    ☐ 05) Marketing/Sales  
     Systems, Programming    ☐ 06) Computer Dealer/VAR

## 3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

## 4. Which of the following products have you bought in the last 6 months? (check all that apply)

|                     | 03                          | 04                          |
|---------------------|-----------------------------|-----------------------------|
| Accounting          | <input type="checkbox"/> 01 | <input type="checkbox"/> 01 |
| Spreadsheets        | <input type="checkbox"/> 02 | <input type="checkbox"/> 02 |
| Project Managers    | <input type="checkbox"/> 03 | <input type="checkbox"/> 03 |
| Word Processors     | <input type="checkbox"/> 04 | <input type="checkbox"/> 04 |
| Database Managers   | <input type="checkbox"/> 05 | <input type="checkbox"/> 05 |
| Graphics            | <input type="checkbox"/> 06 | <input type="checkbox"/> 06 |
| Integrated Software | <input type="checkbox"/> 07 | <input type="checkbox"/> 07 |
| Communications      | <input type="checkbox"/> 08 | <input type="checkbox"/> 08 |
| Utilities           | <input type="checkbox"/> 09 | <input type="checkbox"/> 09 |

## HARDWARE

 Modems  
 Scanners  
 Microcomputer  
 Printers/Plotters  
 Monitors/Displays  
 Storage  
 Add-in Boards  
 Networking

03    04

☐ 10    ☐ 10  
☐ 11    ☐ 11  
☐ 12    ☐ 12  
☐ 13    ☐ 13  
☐ 14    ☐ 14  
☐ 15    ☐ 15  
☐ 16    ☐ 16  
☐ 17    ☐ 17

## 5. If so, what function do you serve in the buying process? (check all that apply)

☐ 01) Initiation/ Determine Need  
☐ 02) Selection of Brand and Model  
☐ 03) Selection of Source  
☐ 04) Authorization  
☐ 05) Other

## 6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)

☐ 01) over \$5 million    ☐ 05) \$50,000 - \$99,999  
☐ 02) \$1 - 5 million    ☐ 06) \$10,000 - \$49,999  
☐ 03) \$500,000 - \$999,999    ☐ 07) under \$10,000  
☐ 04) \$100,000 - \$499,999

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1. For how many micro computers do you buy products? (check one)

☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

2. Your primary job function is: (check one)

☐ 01) Administrative/General Management ☐ 03) Engineering/R&D ☐ 04) Finance/Accounting ☐ 02) MIS/DP, Communications ☐ 05) Marketing/Sales Systems, Programming ☐ 06) Computer Dealer/VAR

3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

4. Which of the following products have you bought in the last 6 months? (check all that apply)

**SOFTWARE**  
Accounting ☐ 01 ☐ 01 ☐ 03 ☐ 04  
Spreadsheets ☐ 02 ☐ 02 ☐ 03 ☐ 03  
Project Managers ☐ 04 ☐ 04 ☐ 05 ☐ 05  
Word Processors ☐ 06 ☐ 06 ☐ 07 ☐ 07  
Database Managers ☐ 08 ☐ 08 ☐ 09 ☐ 09  
Graphics ☐ 01 ☐ 01  
Integrated Software ☐ 02 ☐ 02  
Communications ☐ 03 ☐ 03  
Utilities ☐ 04 ☐ 04

**HARDWARE**

Modems ☐ 10 ☐ 10  
Scanners ☐ 11 ☐ 11  
Microcomputer ☐ 12 ☐ 12  
Printers/Plotters ☐ 13 ☐ 13  
Monitors/Displays ☐ 14 ☐ 14  
Storage ☐ 15 ☐ 15  
Add-in Boards ☐ 16 ☐ 16  
Networking ☐ 17 ☐ 17

5. If so, what function do you serve in the buying process? (check all that apply)

☐ 01) Initiation/ Determine Need ☐ 02) Selection of Brand and Model ☐ 03) Selection of Source ☐ 04) Authorization ☐ 05) Other

6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)

☐ 01) over \$5 million ☐ 05) \$50,000 - \$99,999 ☐ 02) \$1 - 5 million ☐ 06) \$10,000 - \$49,999 ☐ 03) \$500,000 - \$999,999 ☐ 07) under \$10,000 ☐ 04) \$100,000 - \$499,999

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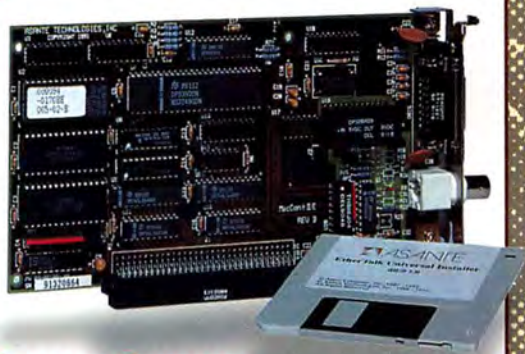
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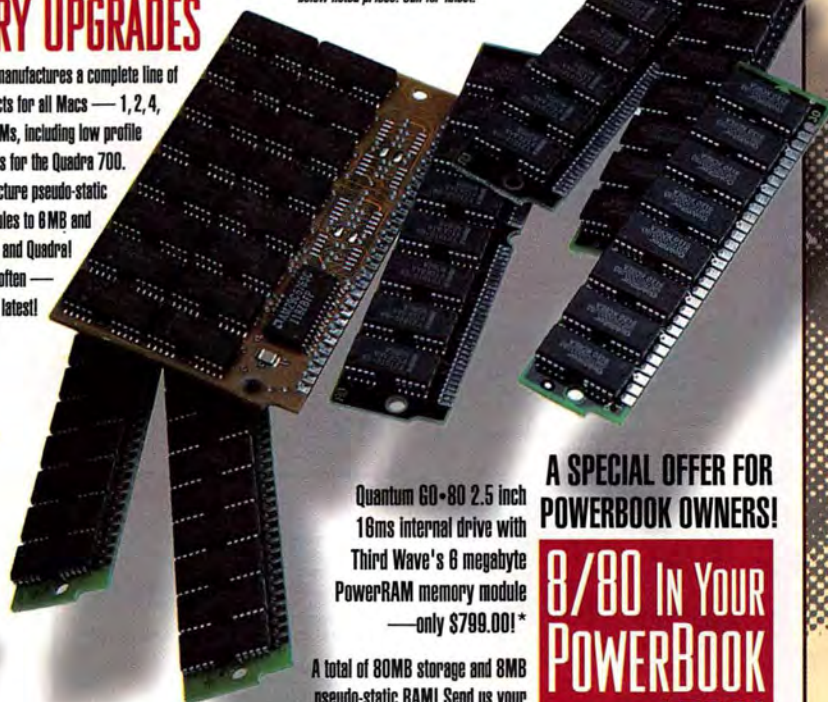
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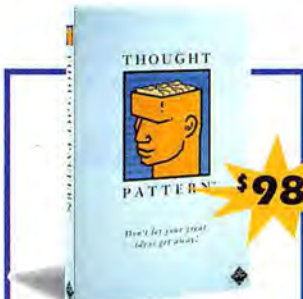
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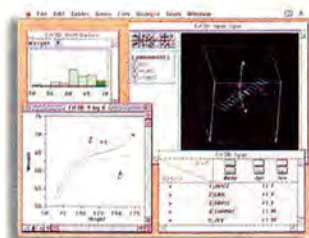
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- Available in 16, 25 & 33MHz Accelerations
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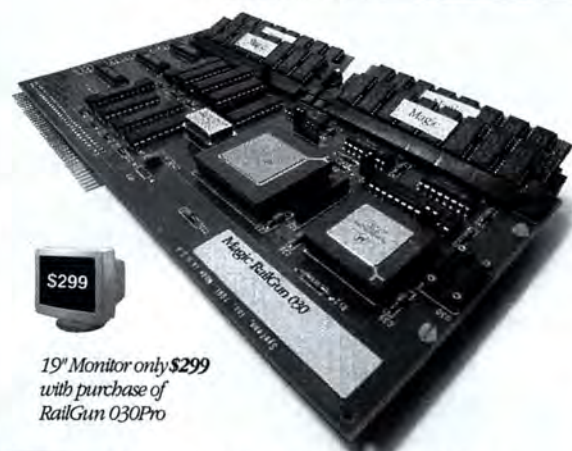


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68030 Accelerators for the Macintosh SE, Classic, & Plus



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## RAILGun 030

|                                                |             |      |
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|-----------------------|--------|--------|
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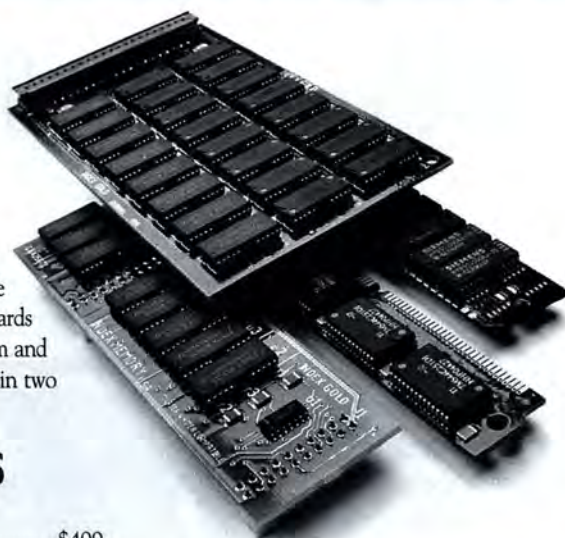
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RasterOps Sweet 16  
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
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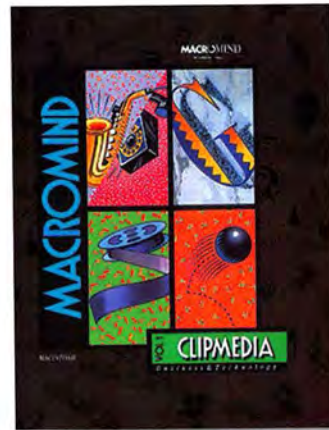
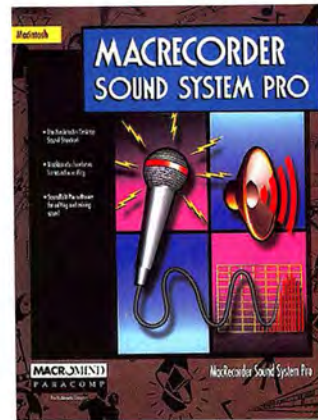
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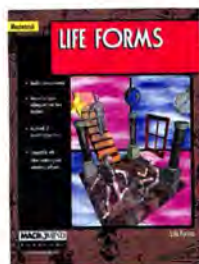
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## MacroMind

New, higher performance *MacroMind Director* playback under control of CD-Audio and digitized projectors. Also available for *System 7*. *Version 1.2, \$995. MacroMind*

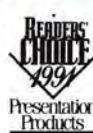


## Swivel 3D™ Professional 2.0

Create, rotate, scale and animate 3D models with this complete modeling and design environment. Hierarchically link object parts. Export 3D views and animation sequences. *Swivel 3D* models are compatible with *MacroMind Three-D* and *Director* for advanced animation and rendering of 3D models. Supports 24-bit color, full screen display, Pixar *MacRenderman*™ output, AutoCAD™ DXF output, Adobe® Illustrator® EPS, PICT and PICS files. *Version 2.0. Suggested list, \$695.*



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According to Apple,  
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If you want to get into QuickTime, the four boxes you see to the right—Director 3.1, MacRecorder Sound System Pro, ClipMedia and Magic—are the right place to start.

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# QUICKTIME AND BEYOND

*Creating QuickTime Movies. Playing Mac-authored Multimedia on Windows and Iris. Creating Windows-based Multimedia Presentations.*



"So that's multimedia," one user was overheard whispering to another at a recent QuickTime™ seminar. Because there on a projected Macintosh screen was a QuickTime "Movie"—complete with graphics, video, music and sound effects.

Then a developer asked, "If I'm using *Macromind Director*™ to do an animation, how do I do QuickTime?"

Many questions like these are being stimulated by QuickTime, Apple's new multimedia technology for the Macintosh.

Put simply, QuickTime defines a new data format for "time based" information (video, animation, music, etc.) and a standard compression scheme to save processing time and disk space.

To end users, QuickTime means that multimedia will be coming to their screens in new, inventive ways. To developers, it means it's definitely time to do QuickTime—or fall behind as the standard takes hold.

## How to get into Movies

Actually, as long as your favorite multimedia authoring tool supports QuickTime, creating a QuickTime Movie is as easy as a "Cut and Paste." (A "Movie" is Apple's term for integrated time-based data.)

Take, for example, the *Director* animation the developer asked about at the seminar.

To create such an animation, simply continue to use *Director* like always. You then can add music and digitized sounds that you've sampled and edited with *MacRecorder*® *SoundSystem*™ Pro.

Or spice things up further by popping a *ClipMedia*™ disk into a CD-ROM player and grabbing a QuickTime video clip.

Using *Director*, you synchronize the audio-visual elements. Then, instead of saving it in the normal *Director* file format, just export your production as a QuickTime Movie.

And that's it. You've just created a QuickTime Movie ready for play-

back in any QuickTime compatible application.

You can play back the Movie within *Director* itself. Or within an entry-level multimedia tool such as *Magic*™.

You can even import standalone Movies into end user apps—to spice up a spreadsheet, for example. Or to make your message very clear in your E-mail. Or to add extra impact to a word processing document.

## Now showing on Windows

QuickTime is great for the Macintosh, but what if you need to play back a production on one of the world's 9 million Windows®-based computers?

If you're using *Director*, moving a Mac-based production to Windows is fairly easy.

You simply save your production in the standard *Director* format and use a package such as *Windows Player*™ to convert it for playback.

Your original Mac-based production can now be distributed and played back under Windows, complete with color, sound and interactivity. (A similar *Player* product is also available for playing *Director* productions on Silicon Graphics Iris Workstations.)

Of course, the *other* way to end up on Windows is to start there in the first place.

Take *Action!*™, the easy-to-use, Windows-based package for busy professionals. *Action!* helps you create dynamic business presentations that—unlike static packages such as *PowerPoint*® and *Persuasion*™—contain the power and persuasion of motion and sound.

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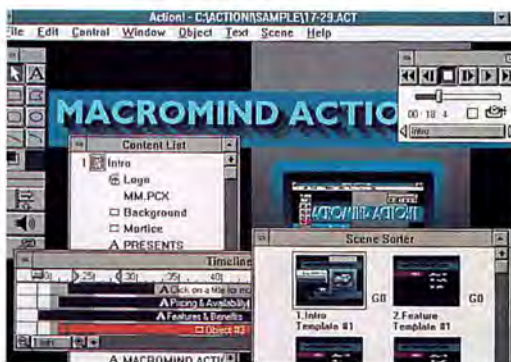
impact of interactive multimedia—and do away with the hassles of overheads and slides.

## Choices

Today, especially with the introduction of QuickTime, multimedia means many things, including "multiplatform."



*Creating a QuickTime Movie with Director 3.1 is as simple as exporting your production.*



*On Windows, Action! brings the power of motion and sound to business presentations.*

You can create QuickTime Movies on the Macintosh.

You can author productions on the Mac, convert them to another format, and play them back on other platforms. Or create presentations directly on Windows.

The choice is yours.





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| <b>Voltage</b> .....     | 95-240V univ.     |
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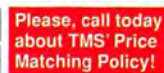
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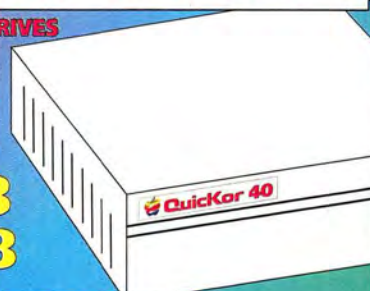
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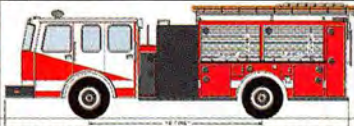
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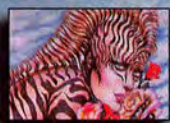
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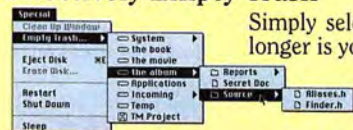
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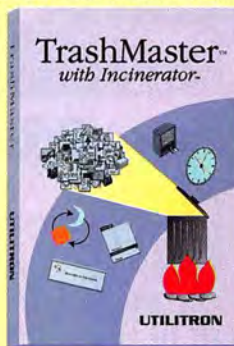
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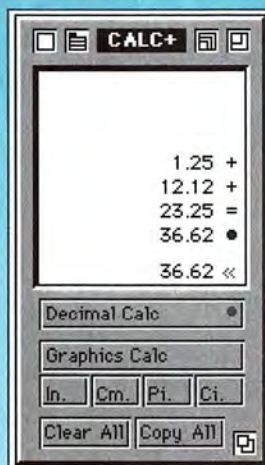
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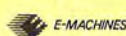
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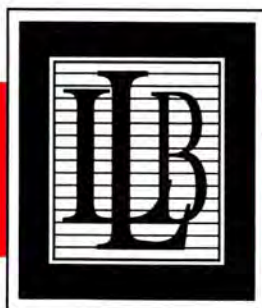
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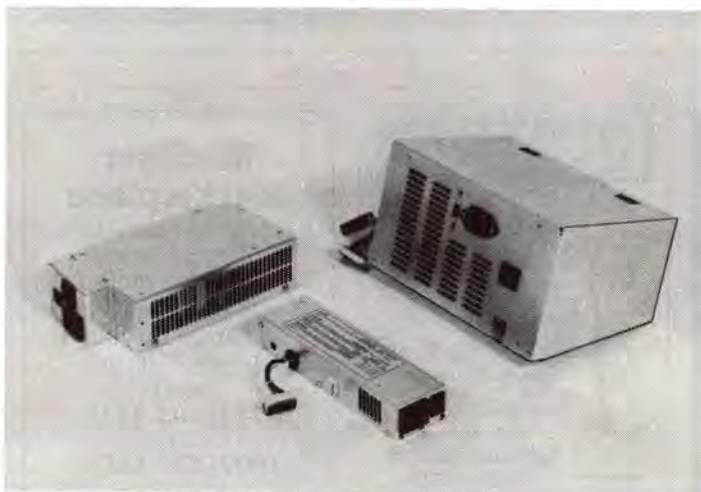
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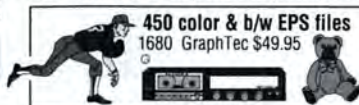
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# Bad Dreams



**Is Apple at the leading edge of technology, or has it gone over the deep end?**



**T**he recurrent dream has me sitting in front of the Mac. The machine won't boot, and I have to finish a manuscript. It begs me for the floppy disk. I have none. "Why won't the hard disk work?" I mumble.

Just then John Sculley and Mike Spindler, both dressed in black tights, burst into my office. Each is wearing brass knuckles. Sculley speaks in clear Russian, which I somehow understand, and Spindler repeats everything Sculley says, only it's in Armenian pig Latin. Somehow I understand him too. They slap their right fists into their left palms simultaneously and rush toward me. I'm scared but realize that they don't want me; they want the Mac IIx on my desk.

Suddenly a man's face appears on the screen of the monitor. It screams, "No, no, no! I don't know how you've found me, but I can't go with you!" Spindler punches the face (which has now become realistic and three-dimensional) and bloodies its nose. The face keeps blubbing, "No, no, no!" as Sculley grabs the monitor and runs out of the room with it. Spindler follows him out, but before he leaves, he looks back at me and says, "You've seen nothing, creep. Nothing!" He slams the door behind him as he leaves.

The sleep clinic told me that the dream had the earmarks of psychic communication and that if I let myself relax, it would have a different ending and I'd finally get the message that was being "stolen" from me, as evidenced by the dream. Reluctantly, before going to sleep, I concentrated on the idea that I would greet the two men in the dream. This time, when Sculley burst in, I said, "Hi, welcome." Things changed instantly.

"It's about time you gave in, Dvorak," said Sculley. "We've got all the new consumer-electronic Apple products to show you. You'll be the first to write about them."

Spindler stood beside Sculley, nodding incessantly.

I was stunned. I could scoop the world, using psychic communication. Wow. Immediately Sculley pulled out a device that looked like two audiocassette-tape boxes glued together. "This is our personal-data credit-card pak. Not much bigger than a credit card, it holds all your personal financial information in this one small package. Designed by the same group that made the original Mac Portable, this will become the standard for

interpersonal credit transactions."

He brandished the thing and then dropped it into a pouch. "It contains an 80-megabyte, two-and-a-half-inch hard drive, and you carry it in one of these neat men's purses so popular in Europe. What do you think?"

"Uh, well, the personal financial data of a lifetime will never amount to more than a megabyte. What's the reason for the hard drive? And the purse will never work. In the United States, only fops and eccentric weirdos use those things. Or haven't you noticed?"

Sculley turned beet red and hit Spindler hard over the head with his Euro-purse. "See, I told you!"

Now smiling again, Sculley looked at me and revealed a basketball. On it was the Apple logo. "What could be more American than a basketball? Only this one is special." He pushed an indentation on the basketball, and it began bouncing all by itself. "Few kids could dribble as well as an NBA pro until now!"

The ball began a series of fancy moves, dribbling itself at high speeds all over the floor. Every so often, it would slow down only to shoot itself into the hoop (there's a basketball court in all my dreams) for a perfect swisher.


"What do you think?" asked Sculley, as a slew of his cronies ran after the ball.

"How's the battery life? I don't see any way to replace or charge the batteries."

Sculley whacked Spindler once again.

"OK, here's something you'll surely like. The highlight. A pen-based Macintosh. We didn't want to be left out of the action." Sculley handed me a funny-looking flip-open device. A pen was hanging from it by a thin wire. "It reads handwriting. Just fill in the boxes you see on the screen. Write in 'Apple!'" Sculley winked at Spindler as I carefully printed the word *APPLE*. In ASCII characters, just above the boxes, appeared the letters *ADBIF* and a dialog box asking me if this was the word I wanted.

"Look! One-hundred-percent recognition!" screamed Sculley. He joined hands with Spindler, and they danced around, hopping in a circle, yelling, "Hooray! Hooray!"

I woke up laughing. Nothing could be sillier than these products. I felt relieved. But only for a moment. Later that day, I read that Apple was supporting Windows! Gads, I thought to myself, I must still be asleep! It seems I still am. 



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